COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: March 9, 2016

TO: Planning Commission

FROM: Planning Staff

SUBJECT: EXECUTIVE SUMMARY: Consideration of a Coastal Development Permit, Resource Management-Coastal Zone Permit and a Use Permit, for the construction of a new water storage tank and municipal water well for the purpose of extending the life of the County Service Area No. 11 water supply system. This project is appealable to the California Coastal Commission.

County File Number: PLN 2015-00506
(San Mateo County Department of Public Works)

PROPOSAL

The Department of Public Works is proposing to construct a new water storage tank and municipal water well on County owned land, approximately 1-mile west of the community of Pescadero. The new storage tank and well will be constructed adjacent to an existing County Service Area No. 11 (CSA-11) water storage tank. The proposed new storage tank and well will be owned and operated by the County.

Existing paved and unpaved roads currently used by County maintenance staff will be used for ingress and egress into and out of the Project parcel. No alteration of these roads are required to implement the project. The Project site can be accessed from Bean Hollow Road through a County-owned gated, paved road. Construction equipment will be staged at a flat, graded gravel area, approximately 0.23 acres (10,000 sq. ft.) in size located adjacent to the new well and tank site, which is currently used for temporary storage and parking by the County. Excavated material will be temporarily stockpiled at this location for later disposal at a landfill or other appropriate upland facility that will not impact wetlands or waters. All material will be removed from the Project area at the end of the construction period.

Following the staging and set-up of equipment on the site, well drilling will commence. The installation of the new well will consist of an approximately 20-inch diameter borehole drilled to a depth of 100 feet below mean sea level (287 feet below ground surface) to intercept a deeper portion of the Pigeon Point Formation aquifer. Upon completion of the well installation, pumping tests will be conducted to determine appropriate pumping rates and target efficiency. The new well pump and associated

monitoring equipment will be contained within a six-foot (6') high security fence. Existing electrical lines located at the storage tanks will be used to provide power to operate the new pump. The applicant has proposed two potential well locations. The first drilling location will be adjacent to the existing water tank on the project site. It is predicted that this location will result in a successful well. However, if the applicant does not find water at this location, they wish to try an alternate location adjacent to the existing well at the top of the hill.

Following well development and testing, a permanent pump and connection to the existing storage tanks will be installed. An underground water transmission line will be constructed to deliver water from the well to the storage tanks. Electrical power for operation of the pump will be taken from the existing electrical panel at the existing chlorine building.

A new 140,000 gallon, 44-foot diameter water storage tank will be installed adjacent to the existing tank. Due to the presence of potentially compressible near-surface clayey soils, it will be necessary to excavate the tank footprint to a depth of 5 feet below the proposed finish grade of the tank invert to reduce the potential for settlement. This will produce approximately 300 cubic yards (CY) of excavated material, which will be replaced with engineered fill. Due to the slight slope of the site and the requirement for a flat foundation for the new storage tank, an approximately 3-foot tall retaining wall will be constructed around the new storage tank to adjust for the change in grade.

The County will initiate a water conservation program for customers in CSA-11 by providing residents with incentives to install water-saving devices, such as high efficiency toilets. The goal of the water conservation program is to achieve a 2 acre-foot per year (AFY) reduction in annual CSA-11 water demand and successful device installations. The water conservation program will reduce water supply demand and help support implementation of a sustainable water supply system.

RECOMMENDATION

Approve the Coastal Development Permit, County File Number PLN 2015-00506, by adopting the required findings and conditions of approval in Attachment A.

SUMMARY

Staff has completed a review of the project and all submitted documents and reports in order to determine the project's conformity to applicable Local Coastal Program (LCP) Policies and Zoning Regulations. Potential impacts to special status species and water quality were identified. For the purposes of compliance with the California Environmental Quality Act (CEQA), the County is the lead agency and the Department of Public Works (DPW) has assumed the role of lead department. As such, DPW staff has prepared a Mitigated Negative Declaration, which was circulated by the Planning Department for public comment.

The purpose of this project is to address a rapidly diminishing water supply for Pescadero. In 1992, the primary water supply well for Pescadero was constructed with an initial static water level at approximately 106 feet above Mean Seal Level (MSL). By 2002, the static water level in this well had dropped to approximately 90 feet above MSL. At that time, the Department of Public Works retained Todd Engineering, Inc. to assess the long-term health of this well. The Todd Report, looking at historic rates of withdrawal and static water draw down, projected that the current well will fail by 2016. To address this problem, DPW is proposing to drill a new well that will draw water from deeper in the aquifer. In addition, DPW wishes to construct an additional water tank to address both maintenance and fire suppression needs.

Planning staff has reviewed the project and concluded that the project, as conditioned, complies with the County's Local Coastal Program and Zoning Regulations

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COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: March 9, 2016

TO: Planning Commission

FROM: Planning Staff

SUBJECT: Consideration of a Coastal Development Permit, Resource Management-Coastal Zone Permit and a Use Permit, pursuant to Sections 6328.4, 6903 and 6500 respectively, of the County Zoning Regulations for the construction of a new water storage tank and municipal water well for the purpose of extending the life of the County Service Area No. 11 water supply system. This project is appealable to the California Coastal Commission.

County File Number: PLN 2015-00506
(San Mateo County Department of Public Works)

PROPOSAL

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appropriate pumping rates and target efficiency. The new well pump and associated monitoring equipment will be contained within a six-foot (6') high security fence. Existing electrical lines located at the storage tanks will be used to provide power to operate the new pump. The applicant has proposed two potential well locations. The first drilling location will be adjacent to the existing water tank on the project site. It is predicted that this location will result in a successful well. However, if the applicant does not find water at this location, they wish to try an alternate location adjacent to the existing well at the top of the hill.

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RECOMMENDATION

Approve the Coastal Development Permit, County File Number PLN 2015-00506, by adopting the required findings and conditions of approval in Attachment A.

BACKGROUND

Report Prepared By: Michael Schaller, Project Planner, Telephone 650/363-1849

Applicant/Owner: San Mateo County Department of Public Works

Location: Old County Quarry site, off of Bean Hollow Road, Pescadero

General Plan Designation: Open Space

Zoning: Resource Management-Coastal Zone (RM-CZ)

Flood Zone: Zone X (Areas of minimal flood hazard), FEMA Community Panel 06081C-0432E, Effective Date: October 16, 2012.

Existing Land Use: Open Space.

Environmental Evaluation: Initial Study and Mitigated Negative Declaration issued, with a public review period of November 20, 2015 to December 18, 2015. As of the publication of this report, no comments have been received.

Setting: The construction area (proposed new well and water tank location) is an existing graded area approximately 26,000 square feet in size, adjacent to the existing CSA-11 water storage tank. The existing water wells are located uphill from the water tank location along a dirt access road. The staging and material storage area is located immediately east of the construction site on a 10,000 square foot disturbed gravel pad currently used for parking. The access road is located immediately north of the construction site. The construction area, staging area, material storage area, and access road are located on the site of a former rock quarry.

Vegetation at the project site consists of primarily upland grassland and ruderal habitat in the construction areas and a gravel staging area. A stand of spreading rush (wetland plant species), approximately 1,500 square feet in area, occurs in the vicinity of the proposed water tank site. San Francisco Garter Snake (SFGS) and California Red-legged Frog (CRLF) have been observed at or adjacent to waterbodies in the project area. However, the work area and site access occur in an existing graded and disturbed area. No other sensitive plants or animal species were observed during site surveys conducted by the applicant's biologist.

DISCUSSION

A. KEY ISSUES

1. Conformance with the County General Plan

The County's Local Coastal Program (LCP) is a subset of the County General Plan. As such, the two documents have been deemed internally consistent. The analysis below, under the LCP Section, provides evidence of the project's consistency with not only the LCP but, by extension, the County's General Plan.

2. Conformance with the Local Coastal Program

A Coastal Development Permit is required for Public Works projects within the Coastal Zone, pursuant to San Mateo County Local Coastal Program Policy 2.1. Listed categories of Public Works development include "all production, storage,

transmission and recovery facilities for water" (Policy 2.2). Summarized below are the following sections of the LCP that are relevant to this project:

a. Public Works Component

Policy 2.34 - *Capacity Limits*. This policy limits capacity of the system to the water required to serve buildout of the LCP's Pescadero Land Use Plan.

No changes to the proposed buildout figures for the Pescadero Land Use Plan are proposed. The purpose of this project is to address a rapidly diminishing supply for Pescadero. In 1992, the primary water supply well for Pescadero was constructed with an initial static water level at approximately 106 feet above Mean Seal Level (MSL). By 2002, the static water level in this well had dropped to approximately 90 feet above MSL. At that time, the Department of Public Works retained Todd Engineering, Inc., to assess the long-term health of this well. The Todd Report, looking at historic rates of withdrawal and static water draw down, projected that the current well will fail by 2016. In response to the Todd Report and to comply with Condition No. 4 of the primary wells Coastal Development Permit, a monitoring program for water levels was established. In 2013, HydroScience Engineers updated the 2002 report and revised the estimated well failure to 2018. The summary from this report states (included as Attachment H):

> *"CSA-11 water system's Wells No. 1 and 2 were constructed in the portion of the Pigeon Point formation that is located above MSL. This formation is specific to this location and the saturated portion of the formation is at least 700 feet thick; however, only the portion of the formation that is above MSL is available to Wells No. 1 and 2. Current pumping exceeds the amount of recharge as evidenced by the declining water surface elevation. Continual declines in the water surface elevation will expose more of the screen during pumping and exacerbate the cascading water and associated cavitational impacts on the pumps in both wells. It is estimated that at the current rate of water level decline, replacement of the pump will occur much more frequently until the water surface is at a level that it cannot be pumped from the well. It is currently estimated that this condition and thus failure of the well will occur within the next 5 to 7 years at the most."*

To address this imminent failure, the HydroScience report recommends construction of a new well, which will draw water from deeper in the aquifer (approximately 100 feet below MSL) and approximately 800 feet away from the existing well to avoid any potential interference with recharge at the existing well location.

Once the new well is completed, it will become the primary supply for CSA-11, alternating with the current main well. The intention is to utilize the current main well less often in order to allow the upper portion of the aquifer to slowly recharge. The existing back-up well (Well No. 2) will continue to be kept for emergency purposes.

With regard to the proposed new water tank, the HydroScience report found the following:

> *"The current storage reservoir with a working capacity of 140,000 gallons does not have the capacity required to address fire flow requirements of 1,500 gpm for 2 hours, (180,000 gallons), plus operational and emergency demands. While the exact amount of emergency storage is Agency-specified, it should be well over 100% of Maximum Daily Demand as there is no backup power for the system. Therefore, adding additional storage in the amount of 140,000 gallons for a total of 280,000 gallons is reasonable as demonstrated by the recent failure of Well No. 1 in August 2011. CSA-11 did not have any redundancy of supply and therefore had to resort to bottled water for domestic consumption. In addition there was no fire flow storage."*

The purpose of the project is to replace a rapidly dwindling water supply for the town of Pescadero and to augment the existing water storage capacity in order to provide adequate fire suppression. No increase in the number of existing or anticipated water connections is proposed. No changes to the zoning within CSA-11's boundaries are proposed which might lead to an increase in water demand.

Policy 2.38 - *Groundwater Proposal*. This policy requires:

(1) Require, if wells are proposed for increased water supply, two or more wells to reduce the potential for drawing down polluted water from the surface alluvium layer.

(2) Require a storage tank with capacity to provide a two to four week emergency water supply in case of full failure of the wells and/or rapid deterioration of water quality.

As discussed above, the purpose of this project is to meet both of these requirements. The necessity for an additional production well was discussed previously as was the necessity for an additional water tank for fire suppression. However, the analysis contained within the HydroScience memo does not directly address the second requirement for emergency

water supply in case of well failure. Based upon the information cited in the HydroScience memo, daily average water demand in 2012 was approximately 21,425 gallons/day. It should be noted that there has been very little if any development in Pescadero since 2012 that would indicate a substantial increase in water demand.

At this rate of demand, CSA-11 would need approximately 300,000 gallons to meet the minimum two week emergency supply requirement. The proposed second water tank will provide CSA-11 with a total of 280,000 gallons of supply. Again, the 21,425 gallons/day cited above is average daily water demand and does not reflect demand under emergency rationing measures which would be implemented if there was a failure of one or both of CSA-11's wells.

b. Sensitive Habitats Component

Policy 7.1 – *Definition of Sensitive Habitats*. This policy defines sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable. This includes areas supporting rare or endangered species. Approximately 500 feet to the south of the project site lies a large man-made pond that was originally constructed for stormwater retention when the project site was previously used as a sand and gravel quarry. Riparian habitat is found around the perimeter of this pond. However, no project activity is proposed near or within this habitat. The pond also provides habitat for several critical species. Potential impacts and mitigation measures to protect those species are discussed below under Policy 7.5. The biological report prepared for this project also identified vegetation commonly associated with wetland areas at the proposed new water tank location. This vegetation is discussed further under Policy 7.14.

Policy 7.5 – *Permit Conditions*. This policy requires, as part of the development review process, that the applicant demonstrate that there will be no significant impact on sensitive habitats or species. This is achieved by having the applicant submit a biological report outlining what resources exist at the project location and how the project may impact those resources. The applicant has submitted a biological report (included as part of Attachment G of this report) for the project and site, which identifies potential impacts to nesting birds, California Red-legged Frog, San Francisco Garter Snake, and Western pond turtle. Mitigation measures to address these potential impacts were outlined in the report and included as measures within the applicant's Initial Study. Those measures have in turn, been included as Conditions of Approval Nos. 2 - 6 in Attachment A of this report, and will prevent the project from having a significant adverse impact on sensitive habitats or species.

Policy 7.14 - *Definition of Wetland*. This policy defines "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. 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), marginal to lakes, ponds, and man-made 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 vernally wet areas where the soils are not hydric.

In preparing the biological report for this project, the applicant's biologist conducted an initial reconnaissance of the project site to determine if there were any sensitive resources that should be studied further. An area, approximately 1,500 sq. ft. in size, covered with Spreading Rush (*Juncus patens*) was identified. This is a "Facultative Wetland" plant species. Such species usually (but not always) occur in wetlands. The estimated probability of occurring within a wetland is 67% - 99%. This also means there is a 33% chance that the species will be found in non-wetland soils. The location of this patch of Spreading Rush is within the footprint of the proposed new water tank.

Based upon the initial site reconnaissance, the County contracted with BioMaAs, Inc. to prepare a wetlands delineation report. This analysis found that the Spreading Rush covers approximately 50% of the area in which it occurs. It should be noted that this plant species is found throughout the project parcel, including areas that are clearly upland from any water source. Based upon the presence of this plant species, the consulting firm erred on the side of caution and wrote the following in their report:

> *"The County, under the San Mateo County LCP, and following the CCC guidelines, has the discretion to identify any feature as a wetland if it satisfies just one of the three wetland parameters including wetland hydrology, wetland soils, or a preponderance of wetland vegetation."*

Neither the Department of Public Works (DPW) nor BioMaAs consulted with County Planning Staff prior to completion of their reports and the publication of their environmental review document. Planning Staff has come to a different conclusion based upon the field report prepared by BioMaAs. According to the field report, the soils in the area of the Spreading Rush stand do not show hydric characteristics (no organic layer in upper profile), nor do they show wetlands hydrology, such as surface water or soil saturation. As noted above, Spreading Rush is frequently, but not always

found in wetlands, making it an uneven indicator species, and forcing us to look at the other parameters to get a clearer picture of the true nature of the habitat. Based upon the lack of hydrology and hydric soils, staff has determined that the area covered by the Spreading Rush patch does not meet the definition of a wetland. Before reaching a final decision on this matter, Planning Staff consulted with the Coastal Commission's biologists to get their opinion. We received the following response from Nancy Cave at the Coastal Commission:

> *"I forwarded the attached biology report to our in-house experts, Dr. John Dixon and Dr. Laurie Koteen. Both Dr. Dixon and Dr. Koteen concur that points 1-4, the points that are just next to the water tank, do not represent California Coastal Commission defined wetlands. Point 1 has hydrology indicators, but is most likely a small drainage channel that holds water only briefly as it does not support hydrophytic vegetation. Point 5 is a wetland according to Coastal Commission criteria, as it does support significant hydrophytic vegetation. This point is located at a greater distance from the water tank."*

Because the consultant and the Department of Public Works assumed that this area of Spreading Rush was a wetland, they proposed a mitigation measure to offset the perceived impact. However, as discussed above, Staff, in consultation with the Coastal Commission biologists, has determined that this area does not meet the definition of a wetland, and therefore there is no impact to wetland habitat and therefore no need to mitigate.

c. <u>Visual Resources Component</u>

Policy 8.5 - *Location of Development*. This policy requires that new development be located on a portion of a parcel where the development: (1) is least visible from State and County Scenic Roads; and (2) is least likely to significantly impact views from public viewpoints. The project is not within the boundaries of the Pescadero Road County Scenic Corridor, nor is the proposed tank site visible from Pescadero Road. The existing tank is not visible from either Pescadero or the portion of Bean Hollow Road that is within the boundaries of the Corridor. The new tank will be at approximately the same finished elevation as the existing tank and be approximately the same height (18.5 feet tall). The location of the existing and proposed tank sits within the bottom of a "bowl" that is surrounded by the existing hills that comprise the project parcel. The amount of proposed grading to construct the tank pad will be minimal (approximately 300 cubic yards) and will be confined to the immediate footprint of the new tank. No grading of areas visible from public roads is proposed.

3. Compliance with RM-CZ Zoning Regulations

a. Permitted Uses

Public infrastructure uses are not specifically called out in Section 6905 (*Permitted Uses*) of the RM-CZ zoning regulations. However, Section 6500(b) (*Use Permits*) of the zoning regulations allows for such uses subject to the issuance of a Use Permit. Evidence in support of the Use Permit findings is discussed below.

b. Site Design Criteria

Wherever possible, vegetation removed during construction shall be replaced. Vegetation for the stabilization of graded areas or for replacement of existing vegetation shall be selected and located to be compatible with surrounding vegetation, and should recognize climatic, soil and ecological characteristics of the region.

As was discussed previously, the project will remove approximately 1,500 sq. ft. of Spreading Rush (*Juncus patens*) plants. This plant species is frequently, but not always found in wetland habitat. As discussed above, the other defining characteristics of a wetland (hydrology and hydric soils) are not present at this site. Therefore, staff (in consultation with Coastal Commission staff) has concluded that these plants are not a wetland. However, the applicant has proposed replacing these plants at a different location on the project parcel. The applicant is proposing to replace approximately 0.1-acre of non-native ruderal vegetation with native plant species that will encourage the growth of wetland habitat on the project site. While the replacement of non-wetland vegetation with wetland plant species is not specifically required, Planning Staff encourages the growth of wetland habitat whenever possible and the applicant's proposal will meet that goal.

c. Cultural Resources Criteria

Whenever there is substantial indication that an archaeological or paleontological site (hereinafter "site") may exist within a project area, an appropriate survey by qualified professionals shall be required as a part of the Environmental Setting Inventory.

As part of their project preparation, the applicant contracted with Holman & Associates Archaeological Consultants to conduct an archeological reconnaissance of the site. The consultant found no evidence of resources at the site:

> *"The Project Area contains no evidence of prehistoric archaeological resources, either previously recorded or*

found during survey. Recent historic use of the Project Area vicinity is quite evident, including the current water supply use and the previous quarrying use, which are not qualifying historical resources. No structures or features qualifying as historical archaeological or other resources are present in the Project Area. No additional historical resource research or evaluation is recommended prior to the Water Supply Project going forward."

The Cultural Resources report is included as Attachment G of the Initial Study document (Attachment G of this report).

4. Use Permit Findings

As discussed above, public infrastructure type projects, such as this water tank and well, are not principally permitted uses within the RM-CZ Zoning District. However, Section 6500(b) (*Use Permits*) of the County Zoning regulations provides for the:

"Location of electric power, gas, water and oil lines; public utility or public service uses or public buildings in any district when found to be necessary for the public health, safety, convenience or welfare, except that a use permit shall not be required for local distribution lines."

The project is a public utility/service use and thus qualifies for this overarching Use Permit category. As was discussed previously, the new well and water tank are necessary to continue providing the residents of Pescadero with water for domestic consumption and fire suppression.

B. ENVIRONMENTAL REVIEW

Initial Study and Mitigated Negative Declaration issued, with a public review period of November 20, 2015 to December 18, 2015. As of the publication of this report, no comments have been received.

C. REVIEWING AGENCIES

California Coastal Commission
Native American Heritage Commission
Department of Public Works
Department of Health (Environmental Health Division)
County Fire Marshal
Building Inspection Section
Pescadero Municipal Advisory Council

ATTACHMENTS

A. Recommended Findings and Conditions of Approval
B. Location Maps
C. Overall Site Plan
D. New Storage Tanks and Well 3 Site Plan
E. Existing Well 1 and 2 Site Plan
F. Storage Tank Plan and Section
G. Initial Study and Mitigated Negative Declaration (includes Biological Assessment)
H. HydroScience Technical Memo (dated March 19, 2013)

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Attachment A

County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: Planning Commission Hearing Date: March 9, 2016

Prepared By: Michael Schaller, Senior Planner For Adoption By: Planning Commission

RECOMMENDED FINDINGS

Regarding the Mitigated Negative Declaration, Find:

1. That the Mitigated Negative Declaration is complete, correct and adequate and prepared in accordance with the California Environmental Quality Act and applicable State and County guidelines.

2. That, on the basis of the Initial Study, comments received thereto, and testimony presented and considered at the public hearing, that there is no substantial evidence that the project, if subject to the mitigation measures contained in the negative declaration, will have a significant effect on the environment.

3. That the Mitigated Negative Declaration reflects the independent judgment of San Mateo County.

4. That the mitigation measures identified in the Negative Declaration, agreed to by the applicant, placed as conditions on the project, and identified as part of this public hearing, have been incorporated into the Mitigation Monitoring and Reporting Plan in conformance with California Public Resources Code Section 21081.6.

Regarding the Coastal Development Permit, Find:

5. That the project, as described in the application and accompanying materials required by Zoning Regulations Section 6328.7 and as conditioned in accordance with Section 6328.14, conforms with the plans, policies, requirements and standards of the San Mateo County Local Coastal Program with regard to the protection of biotic and visual resources.

6. That the project conforms to the specific findings required by policies of the San Mateo County Local Coastal Program as discussed in Section B(2) of the

Staff Report dated March 9, 2016. Protection measures will be implemented to prevent any impact to biological resources, including San Francisco Garter Snake and California Red-legged Frog.

Regarding the Resource Management-Coastal Zone Permit, Find:

7. That the proposed well and water tank are in conformance with the Development Review criteria for the Resource Management-Coastal Zone District indicated in Section 6912 of the Zoning Regulations.

Regarding the Use Permit, Find:

8. That the construction of the proposed well and water tank at this location are necessary for the public health, safety, convenience or welfare. The project is a public utility/service use and thus qualifies for this overarching Use Permit category. The new well and water tank are necessary to continue providing the residents of Pescadero with water for domestic consumption and fire suppression.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

1. The approval applies only to the proposal as described in this report and materials submitted for review and approval by the Planning Commission on March 9, 2016. The Community Development Director may approve minor revisions or modifications to the project if they are found to be consistent with the intent of and in substantial conformance with this approval.

Mitigation Measures identified in the Mitigated Negative Declaration

2. **BIO-1 - *California Red-legged Frog Protection Measures***

   The County will implement the following measures to avoid and minimize impacts on California Red-legged Frogs:

   a. Prior to Project implementation, the County shall submit to the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) for its review the qualifications of proposed wildlife biologist(s) who will perform pre-activity surveys and on-site monitoring.

   b. A USFWS- and CDFW-approved biologist (qualified biologist) will be present during initial ground-disturbing activities (i.e., clearing and grubbing) to monitor for individual California Red-legged Frogs. The biologist will also be present during any other Project activities that, in the biologist's opinion, could potentially result in take. The biologist(s) shall have the authority to stop any work that may result in the take of this species. The on-site

biologist will be the contact for any employee or contractor who might inadvertently kill or injure a red-legged frog or anyone who finds a dead, injured, or entrapped California Red-legged Frog.

c. No more than twenty-four (24) hours prior to the date of initial ground disturbance, a pre-activity survey for the California Red-legged Frog will be conducted by a qualified biologist at the Project site. The survey will consist of walking the Project limits and within the Project site to ascertain the possible presence of the species. The qualified biologist will investigate all potential areas that could be used by the California Red-legged Frog for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as those of California ground squirrels or gophers. If any adults, subadults, or juveniles are found, all work will cease and the qualified biologist will contact the USFWS and CDFW immediately for guidance.

d. The qualified biologist will conduct employee education training for employees working on earthmoving and/or other Project activities. Personnel will be required to attend the presentation which will describe the California Red-legged-Frog, avoidance, minimization, and conservation measures, legal protection of the animal, and other related issues. All attendees will sign an attendance sheet along with their printed name, company or agency, email address, and telephone number.

e. Project-related vehicles will observe a 15-mile per hour speed limit while in the Project work area.

f. The County will minimize adverse impacts to the California Red-legged Frog by limiting, to the maximum extent possible, the number of access routes, equipment staging, storage, parking, and stockpile areas. Prior to the date of initial ground disturbance at the Project site, equipment staging areas, site access routes, and transportation equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed will be identified, surveyed by the qualified biologist, and clearly marked with 5-foot tall bright orange plastic fencing or other highly visible material. The fencing will be inspected by the qualified biologist and maintained daily until the last day that Project equipment is at the Project site.

g. Ground-disturbing activities will be avoided between November 1 and March 31 because that is the time period when California Red-legged Frogs are most likely to be moving through upland areas.

h. To minimize harassment, injury death, and harm in the form of temporary habitat disturbances, all Project-related vehicle traffic will be restricted to established roads and access areas, equipment staging, storage, parking, and stockpile areas. These areas will be included in pre-activity surveys

and, to the maximum extent possible, established in locations disturbed by previous activities to prevent further adverse impacts. Project-related vehicles will observe a 15-mile per hour speed limit while in the Project work area. Off-road traffic outside of designated and fenced Project work areas will be prohibited.

i. When a California Red-legged Frog is encountered in the Project area, all activities which have the potential to result in the harassment, injury, or death of the individual will be immediately halted. The qualified biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse impacts to the animal.

j. The County will not apply insecticides or herbicides at the Project site during Project implementation or long-term operational maintenance where there is the potential for these chemical agents to enter creeks, streams, waterbodies, or uplands that contain potential habitat for the California Red-legged Frog.

k. California Red-legged Frog may be attracted to structures that provide cavities such as pipes; therefore, all pipes, culverts, or similar structures that are stored at the site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the Project foreman/manager before the pipe is buried, capped, or otherwise used or moved. If a California Red-legged Frog is discovered inside a pipe, the biologist (or a member of the Project crew, if the biologist is not on-site) will watch the individual until it has moved out of the Project work area.

l. To the maximum extent practicable, no Project activities will occur during rain events or within 24-hours following a rain event. Prior to Project activities resuming, a qualified biologist will inspect the Project area and all equipment/materials for the presence of California Red-legged Frogs. The animals will be allowed to move away from the Project site of their own volition.

m. To the maximum extent practicable, night-time Project activities will be minimized or avoided by the County. Because dusk and dawn are often the times when the California Red-legged Frog is most actively moving and foraging, to the maximum extent practicable, earthmoving and other Project activities will cease no less than 30 minutes before sunset and will not begin again prior to no less than 30 minutes after sunrise. Artificial lighting at a Project site will be prohibited during the hours of darkness.

n. Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form will not be used at the Project site because California Red-legged Frogs can become entangled and trapped in

them. Any such material found on-site will be immediately removed by the qualified biologist, Project personnel, or County contractors. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials will not be used.

o. Prior to pre-activity surveys, the Project shall enclose the construction and staging areas with a 3-foot-high silt fence or similar material, of which approximately 6 inches is buried underground, that will remain in place during well and tank construction and site restoration in order to prevent red-legged frogs from entering the impact area. Escape ramps, funnels, or other features that allow animals to exit the construction area, but which will prohibit the entry of such animals, shall be provided in the exclusion fencing. A qualified biologist shall conduct a pre-activity survey of the fence installation area immediately prior to (i.e., the day of) the commencement of installation and shall be on-hand to monitor fence installation. Undercut fences and split, torn, slumping, or weathered fabric shall be repaired by the contractor immediately. Dirt and materials shall not be allowed to accumulate more than 1/2 the height of the fence. The exclusion fencing shall be inspected daily by Project personnel and maintained for the duration of Project implementation.

3. **BIO-2 *San Francisco Garter Snake Protection Measures***

The County will implement the following measures to avoid and minimize impacts on San Francisco Garter Snakes:

a. Prior to Project implementation, the County shall submit to the USFWS and CDFW for its review the qualifications of proposed wildlife biologist(s) who will perform pre-activity surveys and on-site monitoring.

b. A qualified biologist will be present during initial ground disturbing activities (i.e., clearing and grubbing) to monitor for individual garter snakes. The biologist will also be present during any other Project activities that, in the biologist's opinion, could potentially result in take. The biologist(s) shall have the authority to stop any work that may result in the take of this species. The on-site biologist will be the contact for any employee or contractor who might inadvertently kill or injure a garter snake or anyone who finds a dead, injured, or entrapped San Francisco Garter Snake.

c. Immediately prior to the initiation of Project activities on any day in which activities are performed that have potential for take of the San Francisco Garter Snake, a qualified biologist will conduct daytime surveys throughout the Project site. If a San Francisco Garter Snake is observed within the Project work area, either during this survey or at any time, Project activities that could potentially harm the individual shall be stopped immediately. The biologist (or a member of the Project crew, if the biologist is not on-site) will

watch the individual until it has moved out of the work area. No individuals of this species will be relocated without explicit USFWS approval; however, if the snake will not leave the area on its own, the biologist will contact the USFWS to determine if moving any of the individuals is appropriate. If the USFWS approves moving animals, the biologist and USFWS will identify a suitable relocation site, and the County will ensure the qualified biologist is given sufficient time to move the animals from the work site before ground disturbance is initiated.

d. Project-related vehicles will observe a 15-mile per hour speed limit while in the Project work area.

e. San Francisco Garter Snakes may be attracted to structures that provide cavities such as pipes; therefore, all pipes, culverts, or similar structures that are stored at the site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the Project foreman/manager before the pipe is buried, capped, or otherwise used or moved. If a San Francisco Garter Snake is discovered inside a pipe, the biologist (or a member of the Project crew, if the biologist is not on-site) will watch the individual until it has moved out of the Project work area.

f. Prior to pre-activity surveys and consistent with exclusion fencing for California Red-legged Frog, the Project shall enclose the construction and staging areas and proposed mitigation site with a 3-foot-high silt fence or similar material, of which approximately 6 inches is buried underground, that will remain in place during Project implementation in order to prevent San Francisco Garter Snakes from entering the construction and staging areas. Escape ramps, funnels, or other features that allow animals to exit the construction area, but which will prohibit the entry of such animals, shall be provided in the exclusion fencing. A qualified biologist shall conduct a pre-activity survey of the fence installation area immediately prior to (i.e., the day of) the commencement of installation and shall be on-hand to monitor fence installation. The vegetation on the non-construction side of the fence shall be maintained at a height of 4 inches or less to prevent snakes from maneuvering over the fence. Undercut fences and split, torn, slumping, or weathered fabric shall be repaired by the contractor immediately. Dirt and materials shall not be allowed to accumulate more than half the height of the fence. The exclusion fencing shall be inspected daily by Project personnel and maintained for the duration of Project implementation.

4. **BIO-3a *Conduct Pre-construction Survey for Dusky-footed Woodrat Houses***

No less than seven (7) days and no more than thirty (30) days prior to the beginning of ground disturbance and/or construction activities, a qualified biologist will survey the work areas scheduled for construction. The survey shall cover the

access roads, work area, and a 50-foot buffer around the work area. Any dusky-footed woodrat houses found shall be marked in the field with flagging tape and their locations will be recorded with GPS. If a dusky-footed woodrat house is identified in a work area, Mitigation Measure BIO-3b will be implemented by the County.

5. **BIO-3b *Avoid or Minimize Disturbance to Dusky-footed Woodrat Houses***

If a dusky-footed woodrat house is identified in a work area, the County shall attempt to preserve the house and maintain an intact dispersal corridor between the house and undisturbed habitat. An adequate dispersal corridor would be considered to be a minimum of 50 feet wide and have greater than 70% vegetative cover. Even if such a corridor is infeasible, the County will avoid physical disturbance of the nest.

6. **BIO-4 *Measures to Protect White-tailed Kite and Other Nesting Migratory Birds***

For activities occurring between February 15 and August 31, a qualified biologist will survey the Project area for nesting birds. This survey will occur no less than 5 days prior to starting work. If a lapse in Project related work of 2 weeks or longer occurs, another focused survey will be conducted before Project work can be reinitiated. If nesting birds are found, a no-work buffer will be established around the nest and maintained until the young have fledged (generally 300 feet for raptors and 100 feet for other nesting birds). A qualified biologist will identify an appropriate buffer based on a site specific-evaluation. Work will not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival.

7. ***CUL-1 Unexpected Discovery of Cultural Resources***

Not all cultural resources are visible on the ground surface. Prior to the start of construction or ground-disturbing activities, the County shall ensure all field personnel are educated of the possibility of encountering buried prehistoric or historic cultural resources. Personnel will be trained that upon discovery of buried cultural resources, work within fifty (50) feet of the find must cease and the County will contact a qualified archaeologist immediately to evaluate the find. Once the find has been identified and found eligible for listing on the National Register of Historic Places or the California Register of Historical Resources, plans for treatment, evaluation, and mitigation of impacts to the find shall be developed and implemented according to the qualified archaeologist's recommendations. This measure will ensure that prehistoric and historic cultural resources are appropriately protected. Prehistoric or historic cultural materials that may be encountered include the following: unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains.

8. **CUL-2 *Inadvertent Discovery of Human Remains***

If human remains are accidentally discovered during project construction activities, the County will implement the requirements of California Health and Human Safety Code section 7050.5. Potentially damaging excavation will cease in the area of the remains, with a minimum radius of 50 feet, and the San Mateo County Coroner will be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code section 7050.5[b]). If the Coroner determines the remains are those of a Native American, he or she will contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). Pursuant to the provisions of Public Resources Code Section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods.

Best Management Practices (BMPs) to be Implemented for the Proposed Project

9. Non-Hazardous Materials

a. Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.

b. Use (but do not overuse) reclaimed water for dust control.

10. Hazardous Materials

a. Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.

b. Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.

c. Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.

d. Arrange for appropriate disposal of all hazardous wastes.

11. Waste Management

a. Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.

b. Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.

c. Clean or replace portable toilets, and inspect them frequently for leaks and spills.

d. Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)

e. Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

12. Construction Entrances and Perimeter

a. Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off-site.

b. Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

13. Maintenance and Parking

a. Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.

b. Perform major maintenance, repair jobs, and vehicle and equipment washing off site.

c. If refueling or vehicle maintenance must be done on-site, work in a bermed area away from storm drains and over a drip pan big enough to collect fluids.

d. Recycle or dispose of fluids as hazardous waste.

e. If vehicle or equipment cleaning must be done on-site, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.

f. Do not clean vehicle or equipment on-site using soaps, solvents, degreasers, steam cleaning equipment, etc.

14. Spill Prevention and Control

a. Keep spill cleanup materials (rags, absorbents, etc.) available at the construction site at all times.

b. Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.

c. Clean up spills or leaks immediately and dispose of cleanup materials properly.

d. Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).

e. Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.

f. Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.

g. Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: (1) Dial 911 or your local emergency response number, and (2) call the Governor's Office of Emergency Services Warning Center, 800/852-7550 (24 hours).

15. Sediment Control

a. Protect storm drain inlets, gutters, ditches, and drainage courses with appropriate BMPs, such as gravel bags, fiber rolls, berms, etc.

b. Prevent sediment from migrating off-site by installing and maintaining sediment controls, such as fiber rolls, silt fences, or sediment basins.

c. Keep excavated soil on the site where it will not collect into the street.

d. Transfer excavated materials to dump trucks on the site, not in the street.

16. Containment

a. Fluid spills shall not be hosed down. The contractor shall use dry cleanup methods (absorbent materials, cat litter, and/or rags) whenever possible. If water must be used, the contractor will be required to collect the water and spilled fluids and dispose of it as hazardous waste. Spilled fluids shall not be allowed to soak into the ground or enter into any watercourse.

b. Spilled dry materials shall be swept up immediately. Dry spills shall not be washed down or buried. Spills on dirt areas should be removed by digging up and properly disposing of contaminated soil.

c. Significant spills shall be reported to San Mateo County Environmental Health Services Division, or other emergency office as warranted, immediately and documented using the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) Construction Site Inspection Report form.

17. Equipment Maintenance and Fueling

a. A separate area shall be designated for equipment maintenance and fueling, away from any slopes, watercourses or drainage facilities.

b. Where equipment is expected to be stored for more than a few days, cleanup materials and tools shall be kept nearby and available for immediate use (refer to Condition No. 16, "Containment").

c. Equipment shall not be stored in areas that will potentially drain to watercourses or drainage facilities.

d. If equipment must be stored in areas with the potential to generate runoff, drip pans, berms, sandbags or absorbent booms shall be employed to contain any leaks or spills.

e. Equipment shall be inspected daily for leaks or damage and promptly repaired.

18. Timing of Work

a. Construction activities that remove vegetative soil cover and/or potentially release sediment into stormwater will be conducted during the dry season (June 1 and October 15). Activities that are subject to permit requirements will be conducted during the period authorized by the permits.

19. Dust Management Controls

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

c. 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 sweeping is prohibited.

d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

e. 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.

f. 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.

g. Post a publicly visible sign with the telephone number and person to contact at the County regarding dust complaints. Following the review of any dust complaints, the County project manager shall respond and take corrective action within 48 hours.

20. Staging and Access

Staging, access, and parking areas will be located outside of sensitive habitats.

21. Area of Disturbance

Areas of disturbance will be limited to the smallest footprint necessary. The designated work area will be clearly identified in the field using highly visible material, and work will not be conducted outside this area.

22. Traffic Control

Warning signs will be installed along Pescadero Creek Road and Bean Hollow Road. Flaggers will be utilized if necessary to avoid vehicle, bicycle, or pedestrian traffic safety hazards.

23. Equipment Maintenance and Inspection

All equipment will be maintained free of petroleum leaks. All vehicles operated within 250 feet of Butano Creek will be inspected daily for leaks and, if necessary, repaired before leaving the staging area. Inspections will be documented in a record that is available for review on request.

24. Stockpiling

Any weed-free topsoil displaced by Project activities will be stockpiled for use during site restoration. Native vegetation displaced by Project activities will be stockpiled if it is deemed to be useful during site restoration.

25. Site Stabilization

a. Earthwork will be completed as quickly as possible, and site restoration will occur immediately following use. Bare soil surfaces resulting from maintenance and/or construction activities shall be covered with suitable erosion controls (fabrics, hydroseeding, mulch, etc.).

b. Within twelve (12) hours of any break in work unless Project activities will resume within seven (7) days.

c. No later than three (3) days following the disturbance during the rainy season (approximately November through March).

d. No later than seven (7) days following the disturbance during the dry season (approximately April through October).

e. Every effort shall be made to immediately cover bare soil surfaces resulting from maintenance and/or construction activities prior to storms.

26. Environmental Awareness Training

For each activity, all Project personnel will participate in a worker environmental awareness program. Under this program, Project personnel will be informed about the presence of listed species and habitats associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of the Federal Endangered Species Act. Prior to Project activities, a qualified biologist approved by USFWS and National Marine Fisheries Service (NMFS) will instruct all Project personnel about: (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during Project implementation. A fact sheet conveying this information will be prepared for distribution to the Project crew and anyone else who enters the Project site. A member of the Project crew will be appointed and identified during the environmental awareness program whom will be the point of contact for any employee or contractor who might encounter a listed species. The representative's name and telephone number will be provided to USFWS and NMFS prior to the initiation of any activities.

27. Firearms

No firearms (except for federal, State, or local law enforcement officers and security personnel) will be permitted at the Project site to avoid harassment, killing or injuring of wildlife.

28. Domestic Animals

No animals (e.g., dogs or cats) can be brought to the Project site to avoid harassment, killing or injuring of wildlife.

29. Invasive Plant Control

In order to minimize the spread of invasive plants, all equipment (including personal gear) will be cleaned of soil, seeds, and plant material prior to arriving on the Project site to prevent introduction of undesirable plant species.

Environmental Health Division

30. The applicant must submit an application for a well permit to the Environmental Health Division. The application should include three copies of the site plan showing the proposed location of the well and all buildings, structures, easements, and if applicable septic systems. As part of the application process, a site exam will be required by the Environmental Health Division to ensure the proposed well location meets all set back requirements.

Cal-Fire

31. Fire Department access shall be to within 150 feet of all exterior portions of the facility and all portions of the exterior walls of the first story of the buildings as measured by an approved access route around the exterior of the building or facility. Access shall be a minimum of 20 feet wide, all weather capability, and able to support a fire apparatus weighing 75,000 pounds. Where a fire hydrant is located in the access, a minimum of 26 feet is required for a minimum of 20 feet on each side of the hydrant. This access shall be provided from a publicly maintained road to the property. Grades over 15% shall be paved and no grade shall be over 20%. When gravel roads are used, it shall be Class 2 base or equivalent compacted to 95%. Gravel road access shall be certified by an engineer as to the material thickness, compaction, all weather capability, and weight it will support.

32. All buildings that have a street address shall have the number of that address on the building, mailbox, or other type of sign at the driveway entrance in such a manner that the number is easily and clearly visible from either direction of travel from the street. New residential buildings shall have internally illuminated address numbers contrasting with the background so as to be seen from the public way

fronting the building. Residential address numbers shall be at least 6 feet above the finished surface of the driveway. An address sign shall be placed at each break of the road where deemed applicable by the San Mateo County Fire Department. Numerals shall be contrasting in color to their background and shall be no less than 4 inches in height, and have a minimum 1/2-inch stroke. Remote signage shall be a 6-inch by 18-inch green reflective metal sign.

33. Contact the San Mateo County Fire Marshal to schedule a Final Inspection prior to occupancy and Final Inspection by a Building Inspector. Please allow for a minimum 48-hour notice to the Fire Department at 650/573-3846.

34. A Wet Draft Hydrant with a 4 1/2" National Hose Thread outlet with a valve shall be mounted 30 to 36 inches above ground level and within 5 feet of the main access road or driveway, and not less than 50 feet from any portion of any building, nor more than 150 feet from the main residence or building.

35. Because of limited access into your property, the authority having jurisdiction is requiring the installation of a Knox Box, Knox Key Switch, or Knox Padlock to allow rapid response of emergency vehicles onto your property in case of a fire or medical emergency. For an application or further information please contact the San Mateo County Fire Marshal's Office at 650/573-3846.

36. A Site Plan showing all required components of the water system is required to be submitted with the building plans to the San Mateo County Building Inspection Section for review and approval by the authority having jurisdiction for verification and approval. Plans shall show the location, elevation and size of required water storage tanks, the associated piping layout from the tank(s) to the structures, the size of and type of pipe, the depth of cover for the pipe, technical data sheets for all pipe/joints/valves/valve indicators, thrust block calculations/joint restraint, the location of the standpipe/hydrant and the location of any required pumps and their size and specifications.

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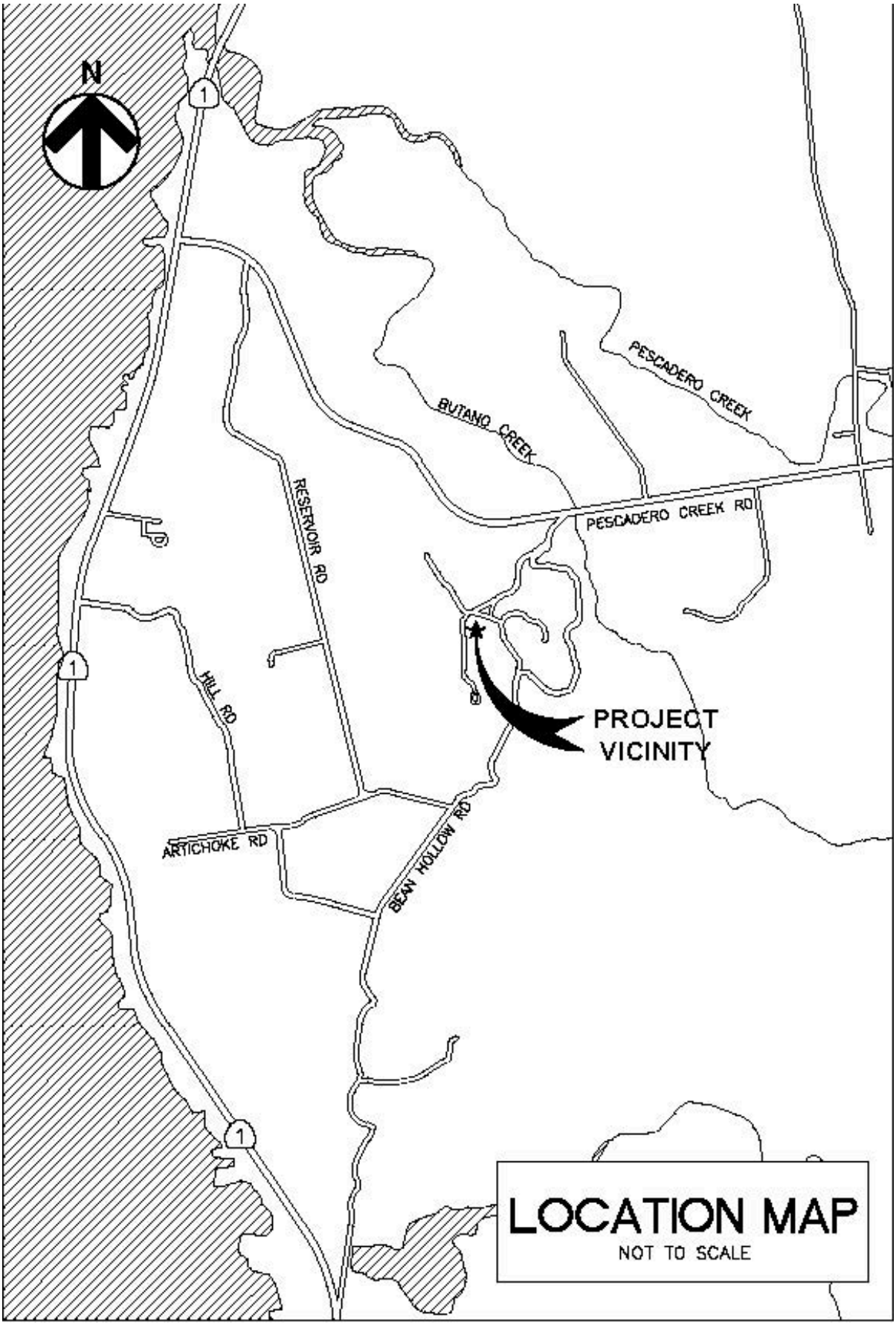
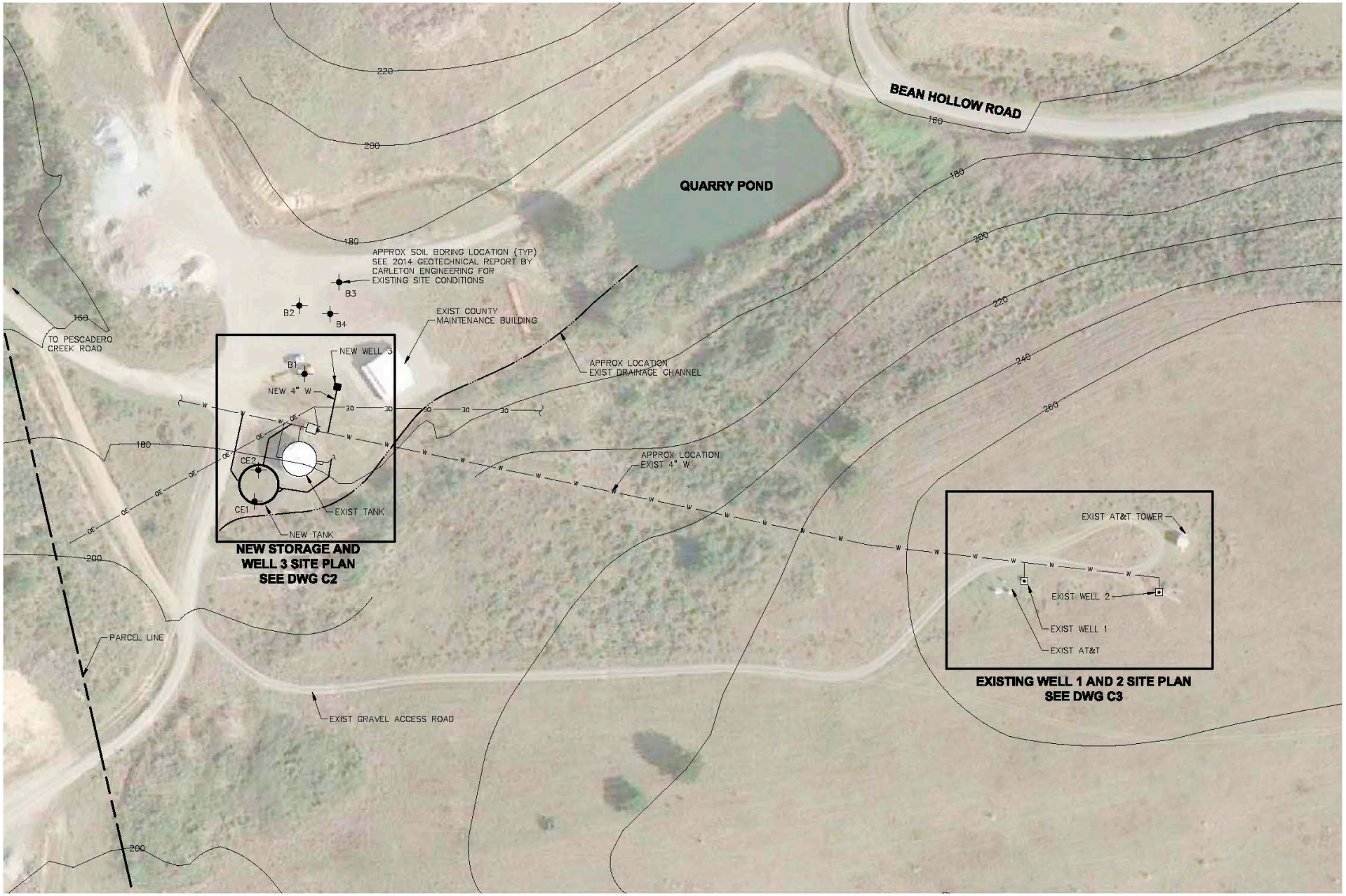


San Mateo County Planning Commission Meeting

Owner/Applicant: **San Mateo County Department of Public Works** Attachment: **B**

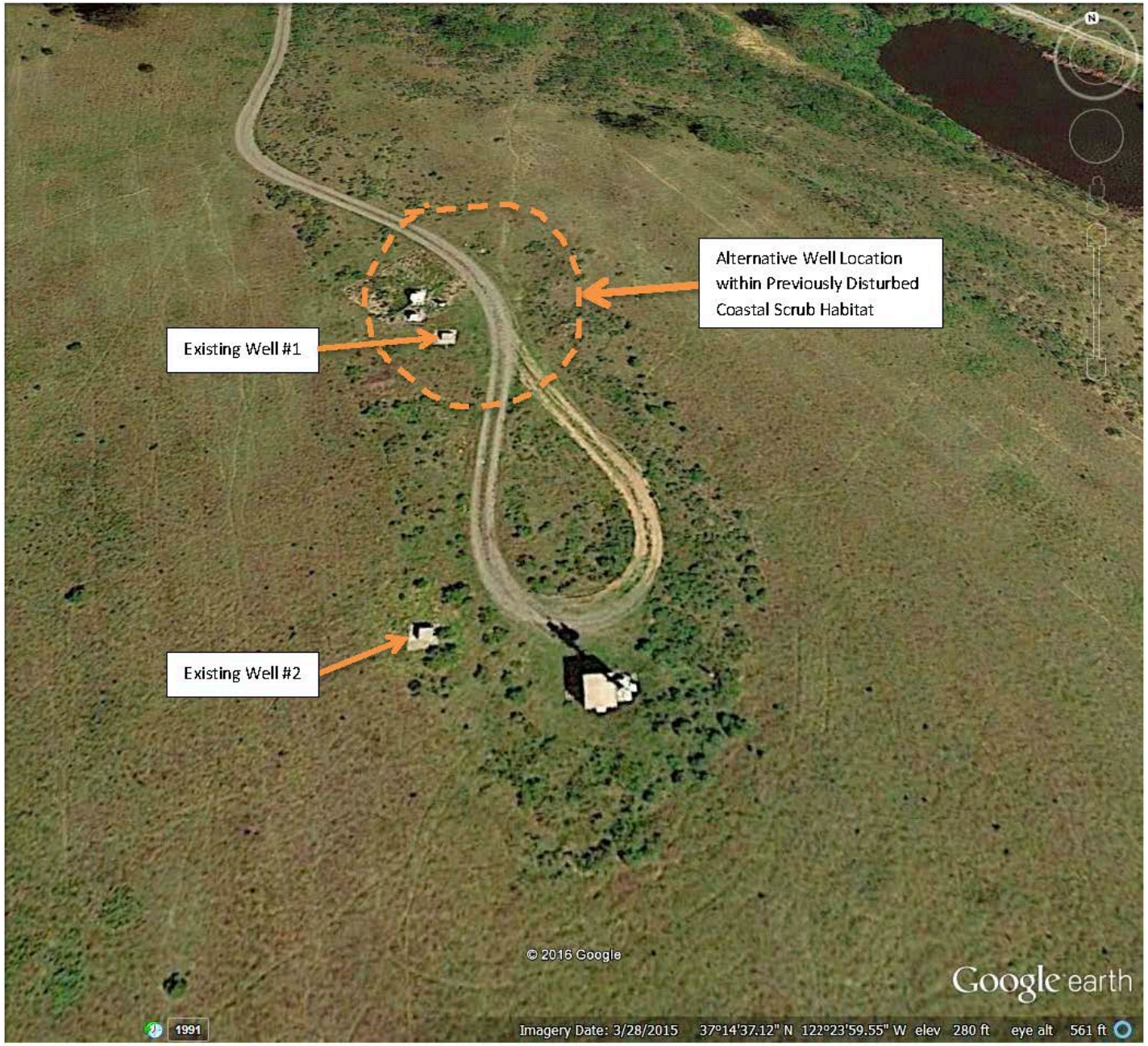
File Numbers: **PLN 2015-00506**



San Mateo County Planning Commission Meeting

Owner/Applicant: **San Mateo County Department of Public Works** Attachment: **C**

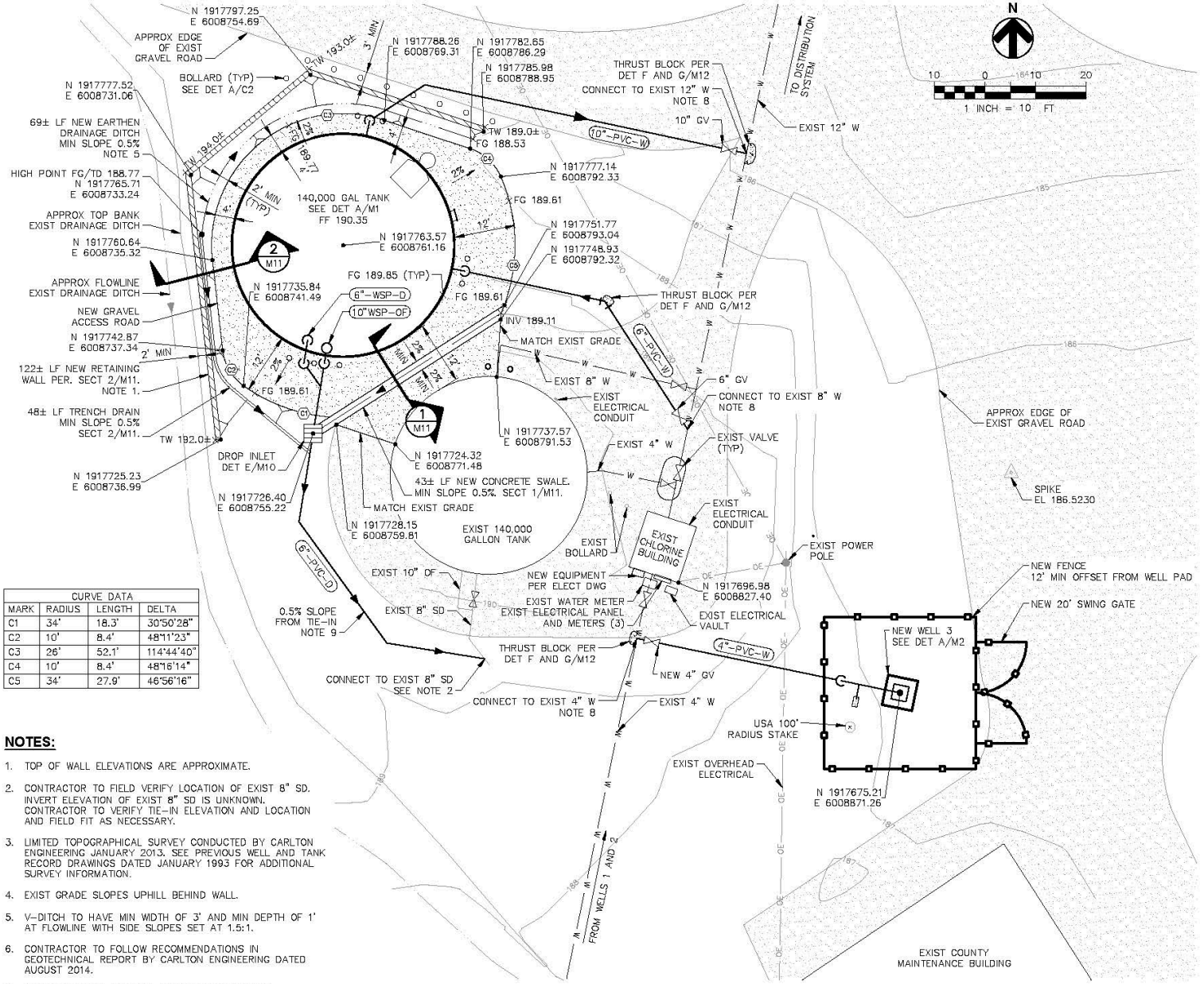
File Numbers: **PLN 2015-00506**



San Mateo County Planning Commission Meeting

Owner/Applicant: **San Mateo County Department of Public Works** Attachment: **C-2**

File Numbers: **PLN 2015-00506**



CURVE DATA			
MARK	RADIUS	LENGTH	DELTA
C1	34'	18.3'	30°50'28"
C2	10'	8.4'	48°11'23"
C3	26'	52.1'	114°44'40"
C4	10'	8.4'	48°16'14"
C5	34'	27.9'	46°56'16"

NOTES:

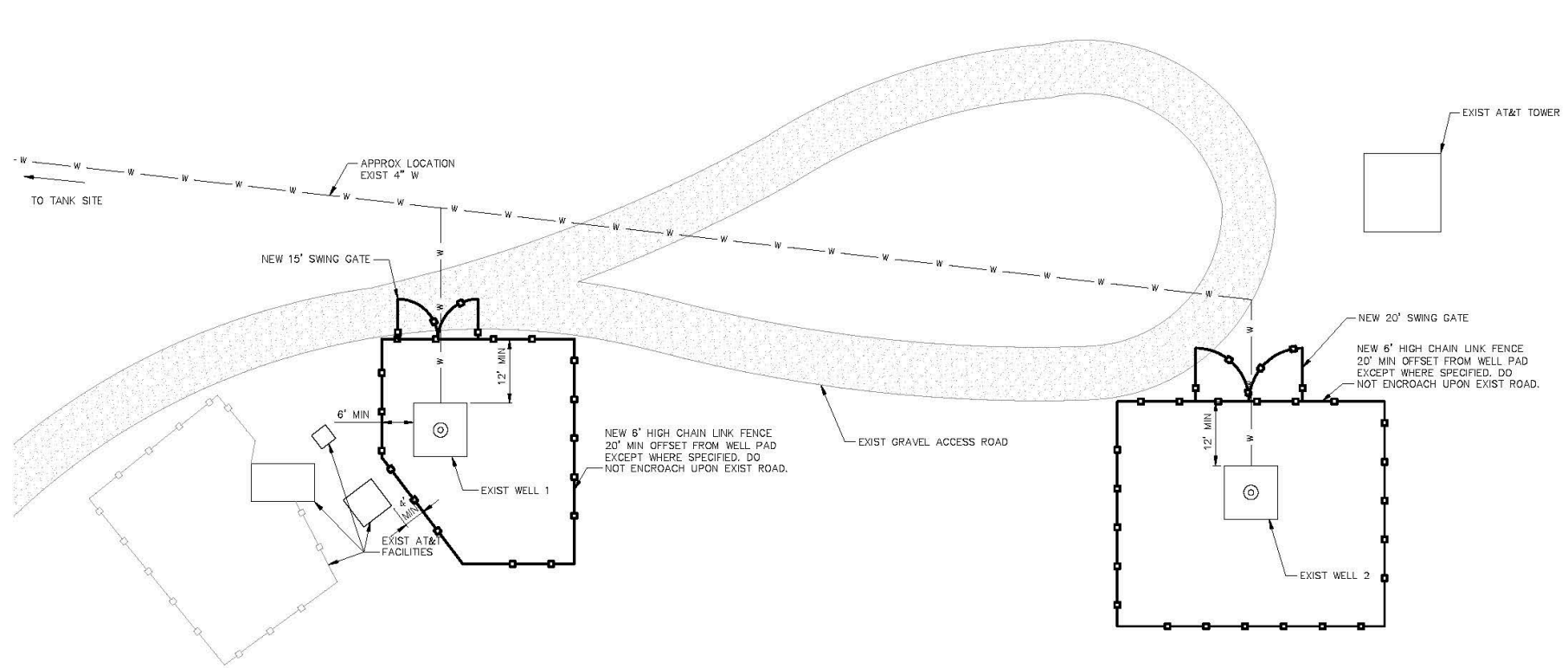
1. TOP OF WALL ELEVATIONS ARE APPROXIMATE.
2. CONTRACTOR TO FIELD VERIFY LOCATION OF EXIST 8" SD. INVERT ELEVATION OF EXIST 8" SD IS UNKNOWN. CONTRACTOR TO VERIFY TIE-IN ELEVATION AND LOCATION AND FIELD FIT AS NECESSARY.
3. LIMITED TOPOGRAPHICAL SURVEY CONDUCTED BY CARLTON ENGINEERING JANUARY 2013. SEE PREVIOUS WELL AND TANK RECORD DRAWINGS DATED JANUARY 1993 FOR ADDITIONAL SURVEY INFORMATION.
4. EXIST GRADE SLOPES UPHILL BEHIND WALL.
5. V-DITCH TO HAVE MIN WIDTH OF 3' AND MIN DEPTH OF 1' AT FLOWLINE WITH SIDE SLOPES SET AT 1.5:1.
6. CONTRACTOR TO FOLLOW RECOMMENDATIONS IN GEOTECHNICAL REPORT BY CARLTON ENGINEERING DATED AUGUST 2014.
7. CONTRACTOR TO PROTECT EXIST DRAINAGE DITCH.

NEW TANK AND WELL 3 SITE PLAN
SCALE: 1" = 10'

San Mateo County Planning Commission Meeting

Owner/Applicant: **San Mateo County Department of Public Works** Attachment: **D**

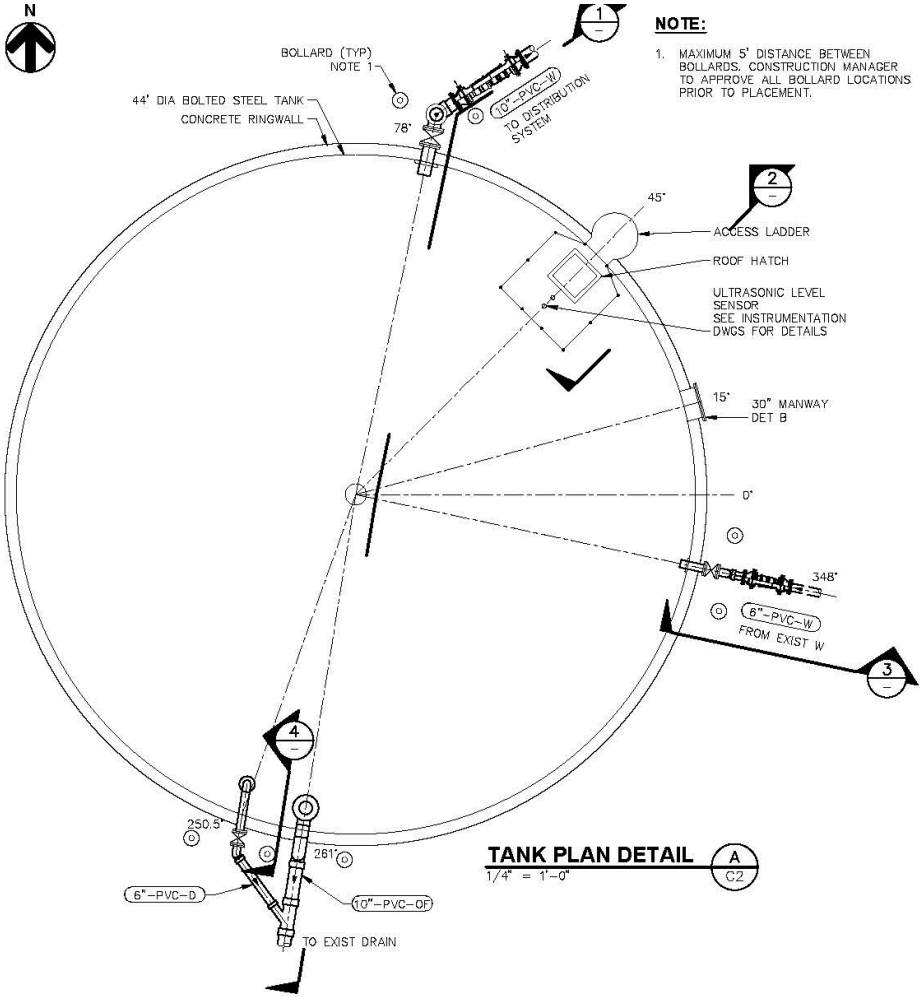
File Numbers: **PLN 2015-00506**

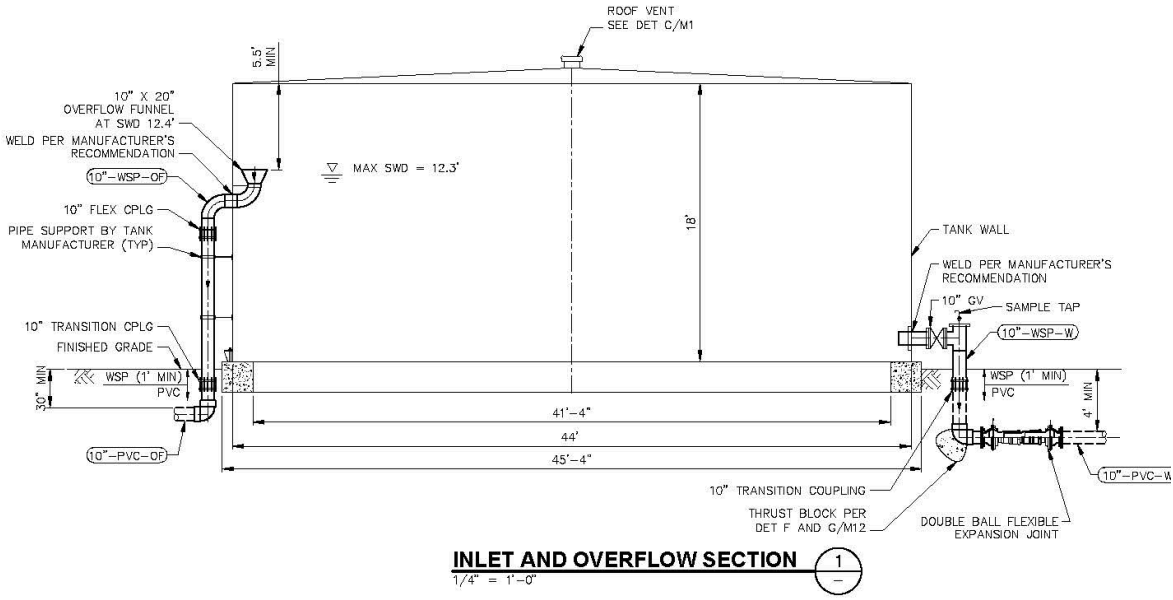


San Mateo County Planning Commission Meeting

Owner/Applicant: **San Mateo County Department of Public Works** Attachment: **E**

File Numbers: **PLN 2015-00506**





San Mateo County Planning Commission Meeting

Owner/Applicant: **San Mateo County Department of Public Works** Attachment: **F**

File Numbers: **PLN 2015-00506**

County of San Mateo - Planning and Building Department

ATTACHMENT G

COUNTY OF SAN MATEO
DEPARTMENT OF PUBLIC WORKS

Pescadero (CSA 11) Water Supply and Sustainability Project

Initial Study/Mitigated Negative Declaration

October 2015

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LIST OF ACRONYMS

AFY	acre-foot per year
APN	Assessor's Parcel Number
asl	above sea level
BAAQMD	Bay Area Air Quality Management District
Bay Area CAP	Bay Area Clean Air Plan
BMP	Best Management Practice
CAL FIRE	California Department of Forestry and Fire Protection
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CH_4	methane
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of San Mateo
CRHR	California Register of Historical Resources
CSA 11	County Service Area No. 11 (Pescadero)
CWA	Clean Water Act
DAC	Disadvantaged Community
dB	decibel
dBA	A-weighted decibel
DOC	California Department of Conservation
DPS	distinct population segment
DWR	California Department of Water Resources
ESA	Endangered Species Act
FAC	facultative
FACW	facultative wetland
F & G Code	Fish and Game Code
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
ft	feet
GHG	greenhouse gas
gpm	gallons per minute
HCP	habitat conservation plan
HMMP	Habitat Mitigation and Monitoring Plan
HRA	health risk assessment
IS/MND	Initial Study/Mitigated Negative Declaration
IRWMP	Integrated Regional Water Management Plan
lb	pounds

L_{dn}	day-night (sound) level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_{min}	minimum sound level
LCP	Local Coastal Program
LOS	level of service
mi	miles
MMRP	Mitigation Monitoring and Reporting Program
mph	miles per hour
MT	metric ton
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OBL	Obligate Wetland Plant
OEHHA	California Office of Environmental Health Hazard Assessment
OHV	off-highway vehicle
OHWM	ordinary high water mark
PGE	Pacific Gas & Electric
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
Proposed Project	Pescadero Water Supply and Sustainability Project
RCD	San Mateo County Resource Conservation District
RCRA	Resource Conservation and Recovery Act
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SFBAAB	San Francisco Bay Area Air Basin
SPRP	Spill Prevention and Response Plan
SR	State Route
SSC	California species of special concern
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
tpy	tons per year
UPL	upland
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
WDRs	Waste Discharge Requirements
$\mu g/m^3$	micrograms per cubic meter

Chapter 1
INTRODUCTION

The County of San Mateo Department of Public Works (County), has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the proposed Pescadero Water Supply and Sustainability Project (Project). This document was prepared pursuant to the requirements of the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (14 California Code of Regulations 15000 et seq.).

1.1 Introduction

The Pescadero Water Supply System serves County Service Area No. 11 (CSA 11) and consists of two groundwater wells (one production well and one stand-by well) located in the Pigeon Point Formation near the top of a hill one mile west of the rural community of Pescadero, in unincorporated San Mateo County, California. These wells have been CSA 11's source of drinking water and fire protection since 1993. One 140,000 gallon water storage tank is located downhill from the wells on the site of an inactive rock quarry and is connected to a distribution system which supplies water from the tank to the CSA 11 community. The CSA 11 municipal water system is owned and operated by the County of San Mateo Department of Public Works (County).

In April 2001, the County retained Todd Engineers to assess the long-term reliability of the water source for the CSA 11 water system. The Todd report ("Assessment of Source Water for the Pescadero Water System," March 2002) concluded that based on the current pumping rate, the existing wells would fail between 2009 and 2016. The consultant recommended installation of a new municipal water well in the vicinity of the existing wells or at a lower elevation near the distribution tank to reduce overall drilling depth. Todd Engineers estimated that installation of a new municipal water well would extend the life of CSA 11 water supply to at least 38 years. An update to the 2001 study was conducted in 2013 by HydroScience Engineers, Inc., which found the rate of decline in water surface elevation over the last 10 years to be approximately 0.6 feet per year, estimating well failure to occur between 2018 and 2020 (HydroScience Engineers 2013).

To provide a sustainable water supply system for CSA 11, the County proposes to construct a new municipal well and storage tank as part of the Project. These facilities are designed to extend the life of CSA 11's water supply for at least the next 50 years without increasing the amount of extracted groundwater and to provide a reliable water supply in the event of an emergency. Additionally, a water conservation program will be implemented in the CSA 11 community to reduce water supply demand and further support implementation of a sustainable water supply system.

1.2 Project Location

The proposed Project is located in coastal San Mateo County, California, approximately one mile west of the unincorporated community of Pescadero, just off Bean Hollow Road on parcels owned by the County of San Mateo (see Sheet C1 in Appendix A). The site where the proposed well and water tank will be located is an existing graded area approximately 16,000 square feet in size, adjacent to the existing CSA 11 water storage tank (APN 086-180-060). The staging and material storage area is approximately 10,000 square feet in size and is located immediately east of the construction site on a disturbed gravel pad currently used for parking. The access road is located immediately north of the construction site. The construction area, staging area, material storage area, and access road are located on the site of a former rock quarry. Security fencing will be installed around new and existing facilities, including the existing CSA 11 wells located on the top of a ridge to the southwest of the construction site.

Land uses adjacent to the Project area include a County maintenance and storage facility located on a former airstrip to the northwest, a County fire station to the northeast, a former quarry floor and gravel storage area to the east, and a pond and open space to the south. A communications tower and the existing CSA 11 wells are located on the top of a ridge to the southwest.

1.3 Intent and Scope of this Document

This IS/MND has been prepared in accordance with CEQA, under which the Pescadero Water Supply and Sustainability Project constitutes a "project." The County, as the lead agency under CEQA, will consider the potential environmental impacts of Project activities when it considers whether to approve the Project. This IS/MND is an informational document to be used in the local planning and decision-making process. The IS/MND does not recommend approval or denial of the proposed Project.

The IS/MND describes the proposed Project and its environmental setting, including the Project area's existing conditions and applicable regulatory requirements. This IS/MND also evaluates potential environmental impacts from the proposed Project to the following resources:

- *Aesthetics*
- *Agricultural and Forestry Resources*
- *Air Quality*
- *Biological Resources*
- *Cultural Resources*
- *Geology, Soils, and Seismicity*
- *Greenhouse Gas Emissions*
- *Hazards and Hazardous Materials*
- *Hydrology and Water Quality*
- *Land Use and Planning*
- *Mineral Resources*
- *Noise*
- *Population and Housing*
- *Public Services*
- *Recreation*
- *Transportation and Traffic*
- *Utilities and Service Systems*

The proposed Project incorporates measures to ensure there would be no significant adverse impacts on the environment.

1.4 Public Involvement Process

Public disclosure and dialogue are priorities under CEQA. Accordingly, CEQA requires a period during the IS/MND process when interested stakeholders, interested public agencies, or the general public can provide comments on the impacts of the proposed project. Pursuant to Sections 15073.5 and 15105[b] of the CEQA Guidelines, the County is now circulating this document for a 30-day public and agency review. All comments received prior to 5:00 p.m. on the date identified for closure of the public comment period in the Notice of Intent will be considered.

Input, questions, or comments on this project can be sent to:

Mark Chow P.E., Principal Civil Engineer
County of San Mateo Department of Public Works
555 County Center, 5th floor
Redwood City, CA 94063-1665
Email: mchow@smcgov.org

1.5 Organization of this Document

This IS/MND document contains the following elements:

Chapter 1, *Introduction*. This chapter provides a brief Project introduction, summarizes the scope and contents of the IS/MND, provides contact information for commenting on the document, and describes impact terminology used in this document.

Chapter 2, *Project Description*. This chapter summarizes the Project, including descriptions of the Project purpose and goals; the Project development process; Project elements; Project implementation and oversight; avoidance and minimization measures; and related permits and approvals.

Chapter 3, *Environmental Checklist*. This chapter presents the environmental checklist used to evaluate the Project's potential environmental effects. The checklist is based on the information provided in Appendix G of the State's CEQA Guidelines and the County's CEQA Guidelines. This chapter includes a brief environmental setting description for each resource topic and describes the proposed project's anticipated environmental impacts.

Chapter 4, *Environmental Factors Potentially Affected*. This chapter lists the environmental factors potentially affected by the proposed Project based on the environmental impact evaluation.

Chapter 5, *Determination*. This chapter contains a determination on the Project based on conclusions and recommendations of the environmental evaluation.

Chapter 6, *Preparers*, provides a list of persons involved in preparing this IS/MND.

Chapter 7, *References*, provides a bibliography of printed references and web sites used in preparing this IS/MND.

Appendix A. 100% Complete Project Designs for the Proposed Project

Appendix B. Mitigation Monitoring and Reporting Program (MMRP)

Appendix C. Air Quality and Greenhouse Gas Emissions Estimates

Appendix D. Lists of Special-Status Species Known to Occur in the Project Area

Appendix E. Biological Impact Form

Appendix F. Pescadero Quarry Preliminary Wetland Delineation and Jurisdictional Determination of Waters of the U.S. & Investigation of Other Sensitive Aquatic Resources Recognized by State and Local Coastal Programs

Appendix G. Archaeological Reconnaissance of the County Service Area 11 Water Supply Project

1.6 Impact Terminology

This IS/MND uses the following terminology to describe environmental effects of the proposed Project:

- A finding of *no impact* is made when the analysis concludes that the Project would not affect the particular environmental resource or issue, or if the impact does not apply to the Project.
- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.
- An impact is considered *significant* if it results in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by using specific significance criteria as a basis of evaluation. Mitigation measures are identified to reduce these potential effects on the environment.
- This IS/MND identifies particular mitigation measures that are intended to lessen Project impacts. The State CEQA Guidelines (14 CCR 15370) define mitigation as:
  - avoiding the impact altogether by not taking a certain action or parts of an action;
  - minimizing impacts by limiting the degree or magnitude of the action and its implementation;
  - rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
  - reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
  - compensating for the impact by replacing or providing substitute resources or environments.

Chapter 2
PROJECT DESCRIPTION

2.1 Project Background

The County of San Mateo Department of Public Works (County) proposes to construct a new water storage tank and municipal water well for the purpose of extending the life of the County Service Area No. 11 (CSA 11) water supply system in unincorporated Pescadero. The new storage tank and well would be installed adjacent to an existing CSA 11 water storage tank and in the vicinity of two existing wells, located approximately one mile west of the community of Pescadero, in San Mateo County, California. The proposed new storage tank and well would be owned and operated by the County. Construction of the proposed storage tank and well would be jointly funded by the County and the California Department of Water Resources (DWR) through an Integrated Regional Water Management (IRWM) grant as part of the Pescadero Water Supply and Sustainability Project. Security fencing (chain-link fencing) will be installed around new and existing wells. The Project is located on parcels currently owned by the County and used by the County of San Mateo Department of Public Works for supplying drinking water to CSA 11 customers and as a County maintenance corporation yard.

Prior to 1993, the Pescadero community's supply of drinking water depended on small domestic wells, water from surface impoundments, and locally derived groundwater from wells installed in the alluvial aquifer of Pescadero and Butano Creeks. In the 1970's and 1980's, these sources were found to contain relatively high concentrations of nitrate and other naturally occurring salts. This situation prompted the development of an alternative groundwater source located near the top of a hill one mile west of Pescadero. Well 2 (test or stand-by well) was installed in 1983; Well 1 (production well), located 300 feet from Well 2, was installed in 1992. These wells have been CSA 11's source of drinking water and fire protection since 1993. In 1993, the estimate of the aquifer's longevity was about 25 years.

Well 2 is a 6-inch diameter PVC-cased gravel pack well, completed to a depth of 257 feet, and constructed with 40 feet of 0.04 inch (40 slot) well screen. The non-pumping or static water level was about 170 feet below ground surface in 1983. Well 1 is a 10-inch diameter PVC-cased gravel pack well completed to a depth of 260 feet and constructed with 40-feet of slotted screen. The CSA 11 water system also includes a 140,000-gallon storage tank and a distribution system. The existing tank and distribution system are in good condition.

In April 2001, the County retained Todd Engineers to assess the long-term reliability of the water source for the CSA 11 water system. The Todd report titled, "Assessment of Source Water for the Pescadero Water System" (2002) concluded that based on the current pumping rate the existing wells would fail between 2009 and 2016. The consultant recommended installation of a new municipal water well in the vicinity of the existing wells or at a lower elevation near the distribution tank to reduce overall drilling depth. Todd Engineers estimated installation of a new municipal water well would extend the life of CSA 11 water supply to at least 38 years. An update to the 2002 study was conducted in 2013 by

HydroScience Engineers, Inc., which found the rate of decline in water surface elevation over the last 10 years to be approximately 0.6 feet per year, estimating well failure to occur between 2018 and 2020 (HydroScience Engineers 2013).

To provide a sustainable water supply system for CSA 11, a new water storage tank, a new municipal water well, and associated infrastructure need to be constructed. These facilities are designed to extend the life of CSA 11's water supply for at least the next 50 years without increasing the amount of extracted groundwater and to provide a reliable water supply in the event of an emergency. Additionally, a water conservation program will be implemented in the CSA 11 community to reduce water supply demand and further support implementation of a sustainable water supply system.

In August 2014, the County retained Carlton Engineering, Inc. to assess the geotechnical suitability of the site for placement of a new 140,000 gallon water tank (Carlton Engineering 2014). Two areas within the vicinity of the existing storage tank were assessed; the preferred tank site is located immediately adjacent to the existing tank and the alternate tank site is located approximately 300 feet to the northeast of the existing tank on a disturbed gravel area. The purpose of assessing multiple sites was to determine if it would be feasible to utilize the alternate site in order to avoid impacts to California Coastal Commission jurisdictional wetlands. The geotechnical study found that liquefaction could occur at the alternate tank site (gravel site) and recommended siting the new tank at the preferred tank site directly adjacent to the existing tank.

The 2014 geotechnical study also found that the preferred tank site consists of subgrade materials that transition from medium-dense to dense clayey sand. Due to the presence of potentially compressible near-surface clayey soils, it will be necessary to over-excavate the tank footprint to a depth of 5 feet below the proposed finish grade of the tank invert to reduce the potential for settlement.

A wetland delineation (Appendix F) of the Project site was conducted by BioMaAS, Inc. on November 12, 2014, to identify habitat types and to assess the potential for the presence of wetlands or plant communities within the Project area that may fall under the jurisdiction of various federal, state, or local regulatory agencies (BioMaAS 2014). Dominant plant species were identified, and areas supporting significant hydrophytic vegetation or evidence of wetland hydrology were described and mapped.

The sensitive habitats component of the San Mateo County Local Coastal Program (LCP) defines a 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 (County of San Mateo 2013). The wetland delineation reported a stand of spreading rush (*Juncus patens*), approximately 1,500 square feet in area, occurring in the vicinity of the proposed water tank site (Appendix E, Figure 3). The spreading rush stand was roughly estimated to support approximately 50% cover of spreading rush. Although this native species is often seen in dry soil conditions, it is also encountered in moist soil conditions. The indicator status of spreading rush is facultative wetland (FACW), meaning it usually occurs in wetlands (estimated probability 67%-99%), but is sometimes found in non-wetlands (Lichvar, et. al. 2014). The County, under the San Mateo County LCP, and following the California Coastal Commission guidelines, has the discretion to identify any feature as a wetland if it satisfies just one of the three wetland parameters including wetland hydrology, wetland soils, or a preponderance of wetland vegetation. As such, these features will likely fall under the jurisdiction of the California Coastal Commission under the auspices of the San Mateo

County LCP because they are clearly dominated by wetland plant species. However, it is not anticipated that this wetland will fall under the jurisdiction of the U.S. Army Corps of Engineers or the San Francisco Bay Regional Water Quality Control Board given the absence of wetland hydrology and wetland soils in the Project area (BioMaAS 2014). Disturbance associated with installation of the new water storage tank would result in permanent and temporary direct and indirect impacts to 0.03 acres of San Mateo County LCP jurisdictional wetland habitat.

2.2 Project Objective

The objective of the Project is to construct a new municipal water well and storage tank to provide adequate water supply, emergency response, water reliability, and groundwater improvement for the CSA 11 water system, which serves approximately 100 households designated as a disadvantaged community (DAC) within the unincorporated community of Pescadero. A water conservation program will be implemented to reduce water supply demand and further support implementation of a sustainable water supply system. Chain-link fencing will be installed around new and existing CSA 11 wells to provide increased security of the water supply system.

2.3 Proposed Project

The proposed Project involves construction of a new municipal water well and storage tank on a parcel currently owned by the County (APN 086-180-060), located approximately one mile west of the community of Pescadero, in unincorporated San Mateo County, California. The parcel is previously disturbed and is the site of the existing two wells and water storage tank. The Project would provide a new well that accesses a deeper portion of the groundwater aquifer, without increasing the amount of groundwater extracted. Security fencing (chain-link fencing) will be installed around new and existing wells.

The total project disturbance area at the new tank and well site is approximately 0.37 acre. An additional 0.23 acre would be used for temporary staging and material storage. Approximately 0.03 acre would be disturbed during the security fence installation at the existing CSA 11 wells. Plan, profile, and cross section views of the proposed water tank and well installation are presented on Sheets C3 and C4 in Appendix A.

Disturbance associated with installation of the new water storage tank would result in permanent and temporary direct and indirect impacts to 0.03 acres of San Mateo County LCP jurisdictional wetland habitat. To mitigate for these impacts, the County proposes to convert nearby upland, ruderal habitat to wetland habitat by grading the site to create small depressions in which wetland plants, such as spreading rush (*Juncus patens*), will be installed. The proposed mitigation area is located immediately south of the construction site adjacent to an existing pond (Quarry Pond).

2.4 Proposed Project Area

The proposed Project work would occur within the following County-owned parcels: the Project location, staging area, and temporary material storage site are located within APN 086-180-060 and the access road is located within APN 086-160-060.

2.5 Project Implementation

Ground disturbance associated with construction of the new municipal water well and storage tank, installation of the security fencing, and wetland restoration is expected to take up to 2 months to complete. These activities would be timed to occur during the dry season and are described further in the following sub-sections. Up to 10 construction workers would be on-site at one time to complete the work.

Site Access, Staging, and Material Storage/Disposal

Existing paved and unpaved roads currently used by County maintenance staff would be used for ingress and egress into and out of the Project parcel. Access roads are adequately sized to support drill rig and other construction equipment and vehicles. Roads may require standard maintenance such as mowing of shoulders, etc. The Project site can be accessed from Bean Hollow Road through a County-owned gated, paved road (see Sheet C1 in Appendix A).

Construction equipment would be staged at a flat, graded gravel area, approximately 0.23 acres (10,000 sq. ft.) in size located adjacent to the new well and tank site, which is currently used for temporary storage and parking by the County. Excavated material will be temporarily stockpiled at this location for later disposal at a landfill or other appropriate upland facility that will not impact wetlands or waters. All material will be removed from the Project area at the end of the construction period.

Construction of New Water Storage Tank

A new 140,000 gallon, 44-foot diameter water storage tank will be installed adjacent to the existing tank. The new tank will consist of a bolted steel or welded steel round configuration similar to the existing tank. New water pipelines will be installed to connect the new well to the existing chlorine building and to connect the new tank to the existing water supply lines. The pipelines will be 6-inch PVC pipe.

Due to the presence of potentially compressible near-surface clayey soils, it will be necessary to excavate the tank footprint to a depth of 5 feet below the proposed finish grade of the tank invert to reduce the potential for settlement. This would produce approximately 300 cubic yards (CY) of excavated material, which will be replaced with engineered fill. The excavated clayey soils may be reused at the proposed wetland mitigation site.

Due to the slight slope of the site and the requirement for a flat foundation for new storage tank, an approximately 3-ft tall retaining wall will be constructed around the new storage tank to adjust for the change in grade.

The Project also includes installation of a new alarm system, which will ensure that the operators are notified in the event of an emergency, pump shutdown, or low tank level. For security purposes, fencing will be constructed around the new well site, as well as at the existing well sites.

Well Drilling, Development, and Testing

Following the staging and set-up of equipment on the site, well drilling would commence. A new 150 gallon per minute (gpm) capacity well and pump will be installed. The installation

of the new well would consist of an approximately 20-inch diameter borehole drilled to a depth of 100 feet below mean sea level (287 feet below ground surface) to intercept a deeper portion of the Pigeon Point Formation aquifer. A conventional drill rig would drill the well with a 40-foot-long collapsible derrick. Associated drilling equipment including a flatbed truck with drilling rods would be staged in the immediate vicinity on pre-existing disturbed areas. Upon completion of the well installation, pumping tests would be conducted to determine appropriate pumping rates and target efficiency. The new well pump and associated monitoring equipment would be contained within a six-foot (6') high security fence. Existing electrical lines located at the storage tanks will be used to provide power to operate the new pump.

During the drilling process, a bentonite drilling fluid would be used to cool the drill bit, move cuttings out of the well hole, and temporarily stabilize the walls of the well shaft. A mud pit approximately 20-feet long x 10-feet wide x 5-feet deep would be excavated on the site or alternatively a portable steel tank would be used to contain the drilling fluids. During the drilling process, periodic geophysical testing would be conducted at specified depths. Upon completion of the well hole, a well casing and well screen would be installed and sealed into the upper portion of the well shaft. The well screen would be an extension of the casing and would keep the well shaft clear during pumping.

The well development process would commence upon completion of the well casing and well screen installation. Well development is intended to clean and unclog the interface of the well hole and the aquifer, as well as maximize the efficiency of the well. A temporary pump would be used to flush increasing volumes of potable water into and out of the well hole. All water generated during the well drilling and well development process would be directed away from the well site and allowed to dissipate over the vegetated slope to the north of the Project site where it would not cause erosion or have any impact on existing surface waters. Once the well is fully developed, pumping tests would be conducted to determine appropriate pumping rates and target efficiency. Water quality would be monitored to ensure well water is potable. Following the pumping tests, the well hole would be flushed with chlorinated water (5% chlorine by volume). The chlorinated water would be neutralized with additives at the time it is pumped out of the well hole.

Installation of Permanent Pump and Connection to Storage Tanks

Following well development and testing, a permanent pump and connection to the existing storage tanks would be installed. An underground water transmission line would be constructed to deliver water from the well to the storage tanks. Electrical power for operation of the pump would be taken from the existing electrical panel at the existing chlorine building.

Installation of Security Fencing

Six (6) foot tall security fencing (chain-link fencing) will be installed around existing and new wells. Fencing around the existing wells located on the top of a ridge uphill of the water storage tank location will be installed using hand tools and small equipment (e.g. a small auger) to minimize ground disturbance.

Water Supply Sustainability

The County will initiate a water conservation program for customers in CSA 11 by providing residents with incentives to install water-saving devices, such as high efficiency toilets. The goal of the water conservation program is to achieve a 2 acre-foot per year (AFY) reduction in annual CSA 11 water demand and successful device installations. The water conservation program will reduce water supply demand and help support implementation of a sustainable water supply system.

Impacts to Wetlands and Mitigation Site Construction

The County proposes to construct a new water storage tank adjacent to the existing tank on an area containing approximately 0.03 acres of San Mateo County Local Coastal Program jurisdictional freshwater wetland habitat. The pre-existing freshwater wetland habitat present at the new water tank site is composed of approximately 1,500 square feet of approximately 50% native facultative wetland (FACW) and obligate wetland (OBL) vegetation and 50% of ruderal upland species. Native wetland species include spreading rush (*Juncus patens*), Pacific rush (*Juncus effuses* var. *pacificus*), and Harford's sedge (*Carex harfordii*). Non-native facultative (FAC) and FACW species include cut-leaf plantain (*Plantago coronopus*) and Italian ryegrass (*Festuca perennis*).

To mitigate for impacts to San Mateo County LCP jurisdictional wetlands, the County proposes to convert a nearby area of upland, ruderal habitat to wetland habitat by grading the site to create small depressions in which wetland plants, such as spreading rush (*Juncus patens*), will be installed. The proposed mitigation area would be approximately 0.1 acre in size and would be located adjacent to the existing Quarry Pond. A Habitat Mitigation and Monitoring Plan (HMMP) will be developed prior to Project implementation to provide the concepts and direction for implementation and maintenance of the mitigation required by the California Coastal Commission under the auspices of the San Mateo County LCP.

An alternative storage tank site was evaluated to attempt to avoid impacts to wetlands; however, the preferred tank site was determined to be the best option due to liquefaction potential in the alternative site.

Site Restoration

After construction activities are complete, the County's contractor would restore any disturbed construction and staging areas by installing erosion controls, such as hydroseeding with native grass to minimize post-construction erosion.

Best Management Practices

Project activities would include implementation of BMPs from the *San Mateo Countywide Water Pollution Prevention Program* (2012), County of San Mateo Watershed Protection Program's Maintenance Standards (2004), the County's *Local Coastal Program Policies* (2013), and other measures identified for this project. These measures would avoid and minimize adverse effects on people and the environment. The Project BMPs are provided in **Table 2** at the end of this chapter.

2.6 Required Permits and Approvals

The permits and regulatory compliance requirements for the proposed Project are described in **Table 1** by permitting agency. In addition to the requirements summarized

below, the Project must conform to the policies and standards established in the current County General Plan, which is relevant to all resource topics analyzed under CEQA.

Table 1. Permit and Regulatory Requirements Applicable to the Proposed Project

Regulatory Agency	Law/Regulation	Purpose	Permit/Authorization Type
California Water Resources Control Board – Division of Drinking Water (DDW)	California Waterworks Standards	Comply with California Health and Safety Code	Amended domestic water supply permit
State Historic Preservation Officer	NHPA Section 106	State Historic Preservation Officer must be consulted if historic properties or prehistoric archaeological sites may be affected by the Project.	Section 106 evaluation concluded that no evidence of prehistoric archaeological resources, either previously recorded or found during survey
California Department of Transportation	California Vehicle Code, Division 15, Section 35780	Transportation permits are required for movement of oversized or excessive load vehicles on state roadways.	Transportation Permit for construction-related hauling on State Highway 1
County of San Mateo	County Zoning Regulation Section 6328.4	Local Coastal Program compliance for work in unincorporated coastal area of San Mateo County	Coastal Development Permit
	County Municipal Code	Grading and land clearing requires a County Grading Permit and a Land Clearing Permit.	County Grading Permit County Land Clearing Permit

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Table 2. Best Management Practices to be Implemented for the Proposed Project

BMP Number[1]	BMP Title	BMP Description
San Mateo Countywide Water Pollution Prevention Program Construction BMPs (San Mateo Countywide Water Pollution Prevention Program, 2012)		
BMP-1	Non-Hazardous Materials	▪ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days. ▪ Use (but don't overuse) reclaimed water for dust control.
BMP-2	Hazardous Materials	▪ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations. ▪ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast. ▪ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours. ▪ Arrange for appropriate disposal of all hazardous wastes.
BMP-3	Waste Management	▪ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather. ▪ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site. ▪ Clean or replace portable toilets, and inspect them frequently for leaks and spills. ▪ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.) ▪ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.
BMP-4	Construction Entrances and Perimeter	▪ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site. ▪ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.
BMP-5	Maintenance and Parking	▪ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage. ▪ Perform major maintenance, repair jobs, and vehicle and equipment washing off site. ▪ If refueling or vehicle maintenance must be done on-site, work in a bermed area away from storm drains and over a drip pan big enough to collect fluids. ▪ Recycle or dispose of fluids as hazardous waste. ▪ If vehicle or equipment cleaning must be done on-site, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters. ▪ Do not clean vehicle or equipment on-site using soaps, solvents, degreasers, steam cleaning equipment, etc.

[1] Note the BMP number may not match the numbering in the referenced document. This numbering is for the purpose of this IS/MND.

BMP Number[1]	BMP Title	BMP Description
BMP-6	Spill Prevention and Control	▪ Keep spill cleanup materials (rags, absorbents, etc.) available at the construction site at all times. ▪ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made. ▪ Clean up spills or leaks immediately and dispose of cleanup materials properly. ▪ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags). ▪ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them. ▪ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil. ▪ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).
BMP-7	Sediment Control	▪ Protect storm drain inlets, gutters, ditches, and drainage courses with appropriate BMPs, such as gravel bags, fiber rolls, berms, etc. ▪ Prevent sediment from migrating off-site by installing and maintaining sediment controls, such as fiber rolls, silt fences, or sediment basins. ▪ Keep excavated soil on the site where it will not collect into the street. ▪ Transfer excavated materials to dump trucks on the site, not in the street.
San Mateo County Watershed Protection and Maintenance Standards (County of San Mateo Department of Public Works, 2004)		
BMP-8	10.8 Containment	Description: Containment measures are intended to be deployed in the event of a spill of hazardous chemicals, fuels, oils, cement, and other liquids or powders to prevent pollution of water, air, or soil resources. Containment measures may include absorbent materials to soak up spills, tools such as shovels or hoes to dig small emergency containments, tarps to cover dry spills, etc. Applications: Containment measures should be available at all construction sites and at any time that chemicals are to be used near a watercourse. BMP Removal: Handle chemicals and absorbents in accordance with instructions from fire protection staff, Environmental Health officials and/or manufacturer. Spill Prevention and Response: Fluid spills shall not be hosed down. The Contractor shall use dry cleanup methods (absorbent materials, cat litter, and/or rags) whenever possible. If water must be used, the Contractor will be required to collect the water and spilled fluids and dispose of it as hazardous waste. Spilled fluids shall not be allowed to soak into the ground or enter into any watercourse. Spilled dry materials shall be swept up immediately. Dry spills shall not be washed down or buried. Spills on dirt areas should be removed by digging up and properly disposing of contaminated soil. Significant spills shall be reported to San Mateo County Environmental Health Services Division, or other emergency office as warranted, immediately and documented using the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) Construction Site Inspection Report form.

BMP Number[1]	BMP Title	BMP Description
BMP-9	10.12 Equipment Maintenance & Fueling	Description: Equipment maintenance and fueling is frequently required at construction sites. Proper equipment maintenance and fueling procedures will ensure that no fluids are discharged into watercourses, and that any spills are promptly cleaned up, reported (if necessary) and properly disposed of. General Requirements: A separate area should be designated for equipment maintenance and fueling, away from any slopes, watercourses or drainage facilities. Where equipment is expected to be stored for more than a few days, cleanup materials and tools should be kept nearby and available for immediate use (refer to BMP 10.8, "Containment"). Equipment should not be stored in areas that will potentially drain to watercourses or drainage facilities. If equipment must be stored in areas with the potential to generate runoff, drip pans, berms, sandbags or absorbent booms should be employed to contain any leaks or spills. Equipment should be inspected daily for leaks or damage and promptly repaired. Spill Prevention and Response: Fluid spills shall not be hosed down. The Contractor shall use dry cleanup methods (absorbent materials, cat litter, and/or rags) whenever possible. If water must be used, the Contractor will be required to collect the water and spilled fluids and dispose of it as hazardous waste. Spilled fluids shall not be allowed to soak into the ground or enter into any watercourse. Spilled dry materials shall be swept up immediately. Dry spills shall not be washed down or buried. Spills on dirt areas should be removed by digging up and properly disposing of contaminated soil. Significant spills shall be reported to San Mateo County Environmental Health Services Division, or other emergency office as warranted, immediately and documented using the SMCWPPP Construction Site Inspection Report form.
BMP-10	10.29 Timing of Work	In general, routine maintenance and construction activities that remove vegetative soil cover and/or could potentially release sediment into stormwater will be conducted during the dry season (June 1 and October 31). Activities that are subject to permit requirements will be conducted during the period authorized by the permits.

BMP Number[1]	BMP Title	BMP Description
Bay Area Air Quality Management District Best Management Practices (BAAQMD 2010)		
BMP-11	Dust Management Controls	The County will implement the Bay Area Air Quality Management District (BAAQMD) Basic Dust Control Measures. Current measures stipulated by the BAAQMD Guidelines include the following: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. 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 sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. 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. 6. 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. 7. 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. 8. Post a publicly visible sign with the telephone number and person to contact at the County regarding dust complaints. Following the review of any dust complaints, the County project manager shall respond and take corrective action within 48 hours.
General Avoidance and Minimization Measures		
BMP-12	Staging and Access	Staging, access, and parking areas will be located outside of sensitive habitats to the extent feasible.
BMP-13	Area of Disturbance	Areas of disturbance will be limited to the smallest footprint necessary. The designated work area will be clearly identified in the field using highly visible material, and work will not be conducted outside this area.
BMP-14	Traffic Control	Warning signs will be installed along Pescadero Creek Road and Bean Hollow Road. Flaggers will be utilized if necessary to avoid vehicle, bicycle, or pedestrian traffic safety hazards.
BMP-15	Equipment Maintenance and Inspection	All equipment will be maintained free of petroleum leaks. All vehicles operated within 250 ft of waterbodies will be inspected daily for leaks and, if necessary, repaired before leaving the staging area. Inspections will be documented in a record that is available for review on request.
BMP-16	Stockpiling	Any weed-free topsoil displaced by Project activities will be stockpiled for use during site restoration. Native vegetation displaced by Project activities will be stockpiled if it would be useful during site restoration.

BMP Number[1]	BMP Title	BMP Description
BMP-17	Site Stabilization	Earthwork will be completed as quickly as possible, and site restoration will occur immediately following use. Bare soil surfaces resulting from maintenance and/or construction activities shall be covered with suitable erosion controls (fabrics, hydroseeding, mulch, etc.): ▪ Within 12 hours of any break in work unless Project activities will resume within 7 days. ▪ No later than 3 days following the disturbance during the rainy season (approximately November through March). ▪ No later than 7 days following the disturbance during the dry season (approximately April through October). Every effort shall be made to immediately cover bare soil surfaces resulting from maintenance and/or construction activities prior to storms.
BMP-18	Environmental Awareness Training	For each activity, all Project personnel will participate in a worker environmental awareness program. Under this program, Project personnel will be informed about the presence of listed species and habitats associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of federal or state endangered species acts or other state and local regulations. Prior to Project activities, a qualified biologist approved by CDFW and USFWS will instruct all Project personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during Project implementation. A fact sheet conveying this information will be prepared for distribution to the Project crew and anyone else who enters the Project site. A member of the Project crew will be appointed and identified during the environmental awareness program who will be the point of contact for any employee or contractor who might encounter a listed species.
BMP-19	Firearms	No firearms (except for federal, state, or local law enforcement officers and security personnel) will be permitted at the Project site to avoid harassment, killing or injuring of wildlife.
BMP-20	Domestic Animals	No animals (e.g., dogs or cats) can be brought to the Project site to avoid harassment, killing or injuring of wildlife.
BMP-21	Invasive Plant Control	In order to minimize the spread of invasive plants, all equipment (including personal gear) will be cleaned of soil, seeds, and plant material prior to arriving on the Project site to prevent introduction of undesirable plant species.
BMP-22	Special Status Plant Species	Special status plant species surveys will be conducted during peak blooming periods, in order to maximize the likelihood of locating sensitive species in the immediate work area. Special status plants will be clearly marked/flagged or temporary construction fencing will be erected to designate the work area and delineate the areas to be avoided.

Sources: San Mateo Countywide Water Pollution Prevention Program, 2012; County of San Mateo, 2004 and 2013; BAAQMD, 2010.

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Chapter 3
ENVIRONMENTAL CHECKLIST

1. Project Title:	Pescadero (CSA 11) Water Supply and Sustainability Project
2. Lead Agency Name and Address:	County of San Mateo Department of Public Works 555 County Center, 5th Floor Redwood City, CA 94063
3. Contact Person, Phone Number and Email:	Mark Chow, P.E. Principal Civil Engineer (650) 599-1489 mchow@smcgov.org
4. Project Location and APN:	A parcel owned by the County of San Mateo located approximately 1.0 mile west of central Pescadero and 1.0 mile east of Highway 1 in unincorporated San Mateo County.
5. Property Owner:	Work and staging area APN: 086-180-060 Access road APN: 086-160-060
6. General Plan Designation:	The proposed Project site is located approximately 1,000 feet west of Bean Hollow Road within the Town of Pescadero Planning Area. The unincorporated community of Pescadero lies entirely within the Coastal Zone and is a Rural Service Center as designated by the San Mateo County General Plan (1986). The General Plan encourages the continuation and development of Rural Service Centers in order to: provide commercial facilities which support local residents and the surrounding agricultural, timber harvesting, resource extraction and recreational economy; meet the housing needs generated by local employment; concentrate development and services to minimize impacts upon surrounding resources and maximize compatibility of land uses; facilitate the provision of services and infrastructure; and promote local employment and enhance creative enterprise through development of appropriately zoned parcels and/or adaptive reuse of non-residential structures that are consistent with the protection of neighborhood quality.
7. Zoning:	The proposed project site is located in the Resource Management – Coastal Zones/Coastal Development (RM-CZ/CD) zoning districts. According to Section 6903 of the San Mateo County Zoning Ordinance (1999), construction

of public facilities and utilities shall be allowed in the RM-CZ District pending issuance of a permit pursuant to the Development Review Procedure specified in Chapter 23 of the Ordinance.

8. Description of Project: See Chapter 2, *Project Description*.

9. Surrounding Land Uses and Setting: County-owned open space to the north, west, and south; a County-owned inactive quarry to the east; and a County fire station to the northeast.

10. Other Public Agencies whose Approval or Input May Be Needed:

- County of San Mateo Local Coastal Program
- California Department of Fish and Wildlife
- California State Historic Preservation Office
- California Water Resources Control Board – Division of Drinking Water
- Regional Water Quality Control Board (San Francisco Bay Region)
- National Marine Fisheries Service
- United States Fish and Wildlife Service

This chapter of the IS/MND assesses the proposed Project's environmental impacts based on the environmental checklist provided in Appendix G of the state's CEQA Guidelines. The environmental resources and potential environmental impacts of the proposed Project are described in the individual subsections below. Each section (3.1 through 3.18) provides a brief overview of existing environmental conditions for each resource topic to help the reader understand the conditions that could be affected by the proposed Project. In addition, each section includes a discussion of the rationale used to determine the significance level of the Project's environmental impact for each checklist question.

Resources reviewed for relevant information are cited as applicable.

3.1 AESTHETICS. Would the project:				
	Potentially Significant Impact	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
a. Have a significant adverse effect on a scenic vista, views from existing residential areas, public lands, water bodies, or roads?			**X**	

The proposed Project would be located just south of Pescadero Creek Road along Bean Hollow Road and east of State Route 1. According to the San Mateo County General Plan (1986), Pescadero Creek Road is considered a County Scenic Road and State Route 1 is considered a State Scenic Highway in the vicinity of the Project site. The majority of Project activities will occur in a small valley between two existing ridges and would not be visible from these scenic roads. In addition, the construction, staging, and material storage areas are located adjacent to an existing 140,000 gallon water storage tank on the site of a former rock quarry. This site is currently used as a maintenance corporation yard by the County of San Mateo Department of Public Works. Approximately 6-ft tall security fencing (chain-link fencing) will be installed at the site of two existing water supply wells located on the top of a ridge uphill of the existing water storage tank. The wells are immediately adjacent to a large communication tower. This area cannot be seen from Pescadero Creek Road. Design and construction of the proposed Project would adhere to the guidelines outlined in Chapter 4 "Visual Quality Policies" of the San Mateo County General Plan (1986) and Chapter 8 "Visual Resources" of the San Mateo County Local Coastal Program (2013).

The proposed Project is expected to have a **less than significant** impact on scenic vista, views from existing residential areas, public lands, water bodies, or roads.

b. Significantly damage or destroy scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				**X**

There are no scenic highways within the Project area. The nearest scenic highway is State Route 1, approximately 1.0 mile west of the Project area. The proposed Project location is an existing graded area adjacent to existing water supply facilities. The proposed water tank and well construction site lies in a small valley between two existing ridges and would not be visible from existing residential areas, public lands, public water bodies or roads. New security fencing (chain-link fencing) will be installed at the existing water supply wells on the top of a ridge adjacent to an existing communication tower. This ridge is not visible from State Route 1.

Note that the Project area is in the vicinity of a County-designated scenic corridor; refer to the response to question 3.1e, below. The proposed Project is expected to have **no impact** on trees, rock outcroppings and historic buildings within a state scenic highway.

c. Significantly degrade the existing visual character or quality of the site and its surroundings, including significant change in topography or ground surface relief features, and/or development on a ridgeline?			**X**	

The proposed Project would not visually intrude into an area having natural scenic qualities. The

proposed Project location is an existing graded area, largely disturbed due to previous construction and maintenance activities. The construction, staging, and material storage area are located adjacent to an existing 140,000 gallon water storage tank on the site of a former rock quarry. This site is currently used as a maintenance corporation yard by the County of San Mateo Department of Public Works. Approximately 6-ft tall security fencing (chain-link fencing) will be installed at the site of two existing water supply wells located on the top of a ridge uphill of the existing water storage tank. The wells are immediately adjacent to a large communication tower, which is visible from Bean Hollow Road.

Installation of a new 140,000 gallon water storage tank will require excavation of the tank footprint to a depth of 5 feet below the proposed finish grade of the tank invert to reduce the potential for settlement. The excavated material will be replaced with imported engineered fill and will not significantly change the topography or ground surface relief features. Due to the slight slope of the site and the requirement for a flat foundation at the new storage tank site, a 3-ft tall retaining wall will be constructed around the new storage tank to mitigate for the change in grade.

The proposed Project location is an existing graded area adjacent to existing water supply facilities. Therefore, the proposed Project is expected to have a **less than significant** impact on the existing visual character or quality of the site and its surroundings.

d.	Create a new source of significant light or glare that would adversely affect day or nighttime views in the area?				**X**

Construction work on the proposed Project would occur between 7:00 a.m. and 6:00 p.m., Monday through Friday, consistent with the County's Noise Ordinance. If weekend work is necessary, work would occur between 9:00 a.m. and 5:00 p.m. on Saturdays. There would be no nighttime construction that would require lighting, installation of permanent lighting such as street lights or the use of any materials or surfaces that would create a new source of light or glare. The proposed Project is expected to have **no impact** on the community as a result of light pollution.

e.	Be adjacent to a designated Scenic Highway or within a State or County Scenic Corridor?				**X**

Pescadero Creek Road is designated as a San Mateo County scenic corridor (County of San Mateo 1986 and 2015). Project activities would occur adjacent to existing water supply facilities located 0.2 mile south of Pescadero Creek Road. The Project area cannot be seen from Pescadero Creek Road. Therefore, the proposed Project is expected to have **no impact** on the scenic corridor.

f.	If within a Design Review District, conflict with applicable General Plan or Zoning Ordinance provisions?				**X**

The construction site, staging area, and access road within the Project area are designated as Resource Management-Coastal Zone/Coastal Development (RM-CZ/CD). The Project area is not within a Design Review District. Therefore, the proposed Project would not conflict with the General Plan or Zoning Ordinance provisions applicable to Design Review districts. **No impact** would occur.

g.	Visually intrude into an area having natural scenic qualities?			**X**	

As described above, Pescadero Creek Road is a designated County Scenic Corridor. Views of open space lands along Pescadero Creek Road and Bean Hollow Road are considered to have natural scenic

qualities. However, the majority of Project activities will occur in a small valley between two existing ridges and would not be visible from these scenic roads. In addition, the construction, staging, and material storage areas are located adjacent to an existing 140,000 gallon water storage tank on the site of a former rock quarry. This site is currently used as a maintenance corporation yard by the County of San Mateo Department of Public Works. Approximately 6-ft tall security fencing (chain-link fencing) will be installed at the site of two existing water supply wells located on the top of a ridge uphill of the existing water storage tank. The wells are immediately adjacent to a large communication tower. Although the existing communication tower can be seen from Bean Hollow Road, the 6-ft tall chain-link fencing to be installed around the existing wells will not be viewable from this road.

Therefore, the proposed Project is expected to have a **less than significant** impact on the natural scenic quality of the area.

3.2 AGRICULTURAL AND FOREST RESOURCES. Would the project:				
	Potentially Significant Impacts	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
a. For lands outside the Coastal Zone, convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
The proposed Project lies within the San Mateo County Mid-coast Local Coastal Program (LCP). As a result, this criterion does not apply to the proposed Project.				
b. Conflict with existing zoning for agricultural use, an existing Open Space Easement, or a Williamson Act contract?				**X**
The proposed project would not involve lands currently protected under the Williamson Act (agricultural preserve) or an Open Space Easement. The proposed Project would be located on a parcel currently owned by San Mateo County and used to provide drinking water to the community of Pescadero (CSA 11). The proposed Project site, temporary staging area and materials storage area are designated as Resource Management – Coastal Zones and Coastal Development Districts (RM-CZ/CD). None of the parcels in the Project area contain an existing Open Space Easement. The proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract and would not interfere with active agricultural operations. Therefore, the Project would have **no impact** on existing zoning for agricultural use and Williamson Act contracts.				
c. 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?				**X**
The proposed Project would not affect any existing or potential agricultural uses. The proposed Project would be located on a parcel currently owned by the County of San Mateo and used for providing drinking water to the community of Pescadero (CSA 11). The proposed Project would not result in the conversion of Farmland to non-agricultural use. Forest land is not present within the Project area. The proposed Project would have **no impact** on Farmland conversion.				
d. For lands within the Coastal Zone, convert or divide lands identified as Class I or Class II Agriculture Soils and Class III Soils rated good or very good for artichokes or Brussels sprouts?				**X**
The proposed Project lies within the San Mateo County Mid-coast Local Coastal Program (LCP). The				

proposed Project does not involve alteration to agricultural soils. According to information provided by the USDA Web Soil Survey online mapper (USDA 2014, BioMaAS 2014), two soil units are mapped within the proposed Project area. The existing storage tank and proposed new well and tank site is located on Botella loam, sloping, seeped (BoC). This soil is rated Class III and is not considered prime farmland. The existing wells are located on Elkhorn sandy loam, sloping, eroded (EhC2). This soil is rated Class IV and is best suited for grazing. The proposed Project would not convert lands identified as Class I or Class II Agriculture Soils or alter conditions for farming artichokes or Brussel sprouts. **No impact** would occur.				
e. Result in damage to soil capability or loss of agricultural land?			**X**	
As described above, the proposed Project would not affect any existing or potential agricultural uses. The proposed Project would be located on a parcel currently owned by the County of San Mateo and used for providing drinking water to the community of Pescadero (CSA 11). Additionally, the proposed new water well and storage tank construction area is located on the previously disturbed site of a former rock quarry. Therefore, the Project would have a **less than significant** impact on soil capability or loss of agricultural land.				
f. 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))?				**X**
The Project area is not zoned for timberland or forest land uses. Therefore, the Project would not conflict with such uses, and **no impact** would occur.				

3.3 AIR QUALITY. Would the project:				
	Potentially Significant Impacts	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
a. Conflict with or obstruct implementation of the applicable air quality plan?			**X**	

The proposed Project is located in the San Francisco Bay Area Air Basin (SFBAAB) which includes all of Napa, Contra Costa, Alameda, Santa Clara, San Mateo, San Francisco, and Marin Counties, the southern portion of Sonoma County, and the western portion of Solano County. The Bay Area Air Quality Management District (BAAQMD) is the regulatory agency responsible for assuring that national and state ambient air quality standards are attained and maintained in the SFBAAB.

The proposed Project would have a significant impact if it would conflict with or impair implementation of applicable air quality plans established by BAAQMD or local general plans. Applicable air quality plans include the Bay Area 2005 Ozone Strategy, 2010 Bay Area Clean Air Plan and the San Mateo County General Plan. The Bay Area 2005 Ozone Strategy includes stationary source control measures to be implemented through BAAQMD regulations; mobile source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the Metropolitan Transportation Commission (MTC), local governments, transit agencies and others. The Bay Area 2010 Clean Air Plan includes a control strategy that includes stationary source, mobile source, transportation control, land use and local impact, energy and climate, and additional measures to control ozone and its precursors (ROG and NOx), PM_{10}, $PM_{2.5}$, and toxic air contaminants (TACs).

The proposed Project would involve temporary emissions generated by various construction equipment and activities over a two month period, but would not result in induced growth nor result in a permanent new source of emissions. The construction activities would be consistent with strategies that aim to avoid excess emissions including limiting vehicle idling.

The Project does not include any specific source activities covered in the Bay Area 2010 Clean Air Plan or Bay Area 2005 Ozone Strategy. The Project would lead to land uses that are consistent with those anticipated in the San Mateo County General Plan for long-range air quality planning, and would not facilitate further growth. Therefore, the proposed Project would not conflict with an applicable air quality plan and this impact would be **less than significant**.

b. Violate any air quality standard or contribute significantly to an existing or projected air quality violation?			**X**	

The SFBAAB is a state and federal non-attainment area for ozone and $PM_{2.5}$, and a state non-attainment area for PM_{10}. A project would have a significant impact if it would contribute substantially to these air quality violations. San Mateo County has determined that the mass emission thresholds of significance adopted by BAAQMD in 2010 are appropriate air quality thresholds based on substantial evidence. A substantial contribution is defined as a contribution above the BAAQMD CEQA threshold of significance for criteria pollutants including ozone precursors ROG and NOx. The BAAQMD has established mass emission thresholds of significant to determine if air emissions would contribute to an existing or projected air quality violation or result in a cumulatively considerable net increase of criteria pollutant such that the air basin is non-attainment for ambient air quality standards. These are shown in the table below.

Table 3. BAAQMD CEQA Thresholds of Significance for Criteria Air Pollutants

Pollutant	Average Daily Emissions (pounds per day)	Annual Emissions (tons per year)
ROG	54	10
NOx	54	10
PM_{10} (Exhaust)	82	15
$PM_{2.5}$ (Exhaust)	54	10
$PM_{10}/PM_{2.5}$ (Fugitive Dust)	Best Management Practices (BMPs)	None
Local CO	None	None

BAAQMD recommends implementation of BMPs to reduce fugitive dust emissions for all projects (see BMP-11 in Table 2). With implementation of fugitive dust control measures in BMP-11, BAAQMD considers fugitive dust emissions to be less than significant.

The emissions associated with construction activities for the proposed Project are shown in **Table 4**, below. These emissions were estimated using the California Emission Estimator Model (CalEEMod) version 2013.2.2 which uses estimates from CARB's models for offroad vehicles (In-Use Offroad Equipment Model and OFFROAD2007) and EMFAC2011. The modeling result details are provided in **Appendix C**. It was assumed that there would be 1 excavator, 1 loader, and 1 drill rig, and one forklift that would operate for 8 hours per day. It was assumed that the project would take 8 weeks in the summer of 2016. The number of material hauling trips was estimated to be 60 round trips to Corinda Los Trancos Landfill (formerly referred to as Ox Mountain Sanitary Landfill) for disposal with a conservative trip length of 40 miles per trip. The emissions included 10 trips for worker commutes and assumed a trip length of 25 miles round trip.

Table 4. Criteria Pollutant Emissions Model Results

Pollutant	Average Daily Emissions (pounds per day)	Annual Emissions (tons)
ROG	1.41	0.0230
NOx	13.73	0.2265
CO	8.42	0.1606
SO2	0.015	0.00026
PM_{10} (Exhaust)	0.84	0.0142
$PM_{2.5}$ (Exhaust)	0.77	0.0131

Source: CalEEMod Output

In order to control fugitive dust emissions of PM_{10} and $PM_{2.5}$, BAAQMD recommends implementation of basic construction measures. These measures are included in BMP-11,

presented in Chapter 2 (Table 2). Since the emissions from the construction activities are below the BAAQMD CEQA significance thresholds and BMPs for fugitive dust are implemented, this impact would be **less than significant**.				
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			**X**	
As defined in BAAQMD's CEQA Guidelines, project-level emissions that are below the mass emissions thresholds are considered to be less than cumulatively considerable. As described above, the emissions of all criteria pollutants would be less than significant, rendering the Project's contribution to cumulatively significant impacts **less than considerable**.				
d. Expose sensitive receptors to significant pollutant concentrations, as defined by the BAAQMD?			**X**	
Construction-related activities could result in the generation of toxic air contaminants (TACs), specifically diesel particulate matter (DPM), from off-road equipment exhaust emissions. Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically operated within an influential distance of sensitive receptors. Furthermore, construction-related impacts would be greatest adjacent to the construction site, and the impacts would decrease rapidly with distance. Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB 2005). The nearest residence to the Project site is located on Pescadero Creek Road and is more than 600 meters (1,968 feet) from the site. Off-hauling of material disposal to the local landfill in Half Moon Bay would involve hauling trucks in the vicinity of this residence as trucks will be moving from Bean Hollow Road to Pescadero Creek Road to State Route 1. However, the transportation of materials and equipment will occur more than 200 meters (656 feet) from this residence. The closest school is 1 mile away and no health facilities are located nearby. There is a CAL FIRE station located 380 meters from the site, but this is not a substantial concern since it houses adult workers which are not as sensitive as residential children to TACs. Given the short project duration and small number of diesel equipment involved with the proposed Project construction activities, the potential impacts related to exposing TACs to sensitive receptors would be **less than significant**.				
e. Create objectionable odors affecting a significant number of people?			**X**	
Odors associated with the intermittent operation of gasoline and diesel-powered equipment might be detected by nearby sensitive receptors, but these odors would be of short duration and would not affect a substantial number of people. The proposed construction site lies in a small valley between two existing ridges and is located more than 600 meters (1,968 feet) from the nearest residence. The Project would not result in the generation of permanent or long-term objectionable odors during Project operation. Therefore, any odors that could be produced would be short-term and temporary and this impact would be **less than significant**.				
f. Generate pollutants (hydrocarbon,			**X**	

thermal odor, dust or smoke particulates, radiation, etc.) that will violate existing standards of air quality onsite or in the surrounding area?				
Construction-related activities could result in the generation of several criteria pollutants from off-road equipment exhaust emissions. In addition, this equipment and grading work may generate fugitive dust. As discussed above, the criteria pollutants generated by the equipment exhaust are not anticipated to violate existing standards of air quality. In addition, the BMPs regarding fugitive dust mitigation would ensure that dust generation would be minimized and not violate existing air quality standards. Therefore this impact would be **less than significant**.				

3.4 BIOLOGICAL RESOURCES. Would the project:				
	Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a. Have a significant 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		

For the purposes of this assessment, special-status species are those that are listed as rare, species of concern, candidate, threatened or endangered by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS) or California Department of Fish and Wildlife (CDFW)[2]. Special-status plant and animal species with the potential to occur in the proposed Project Area were identified through a review of the following resources:

- USFWS List of Federal Endangered and Threatened Species that Occur in or May Be Affected by Proposed Projects in San Mateo County (Appendix D).
- California Natural Diversity Database Query within a 6-quadrangle area[3] for the San Gregorio USGS quadrangle (CNDDB 2015; Appendix D)
- California Native Plant Society Rare Plant Inventory Database Query within a 6-quadrangle area for the San Gregorio USGS quadrangle for California Rare Plant Rank 1A, 1B, 2B species. Habitat communities queried include those present in the proposed Project Area: marshes and swamps, riparian forest, riparian scrub, riparian woodland, unknown, valley and foothill grassland (CNPS 2015; Appendix D)

Biological reports referenced in this section include:

- Pescadero (CSA 11) Water Supply and Sustainability Project Biological Impact Form For Compliance with Local Coastal Program Policy 7.5 (Appendix E)
- Pescadero Quarry Preliminary Wetland Delineation and Jurisdictional Determination of Waters of the U.S. & Investigation of Other Sensitive Aquatic Resources Recognized by State and Local Coastal Programs (Appendix F)
- The Ecological Position of the San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*) in the Area Surrounding the Pescadero Landfill Site, San Mateo County, California[4]
- Summary of Activities Completed During the Bean Hollow Pond Draining Project[4]
- Results of Frog Surveys and Pond Depth Measurements 2013-2014 Season[4]

Studies conducted for the proposed Project include jurisdictional waters mapping and habitat

[2] Includes California Rare Plant Rank (CRPR) listed species.
[3] There are no USGS quadrangles west of the San Gregorio USGS quadrangle.
[4] This information is considered sensitive due to the Fully Protected status of the San Francisco garter snake.

surveys on November 12, 2014 and biotic habitat surveys on March 6 and April 30, 2015.

A discussion of the proposed Project's potential impacts on special-status species and the level of impacts are provided below.

Environmental Setting

The construction area (proposed new well and water tank location) is an existing graded area approximately 26,000 square feet in size, adjacent to the existing CSA 11 water storage tank. The existing water wells are located uphill from the water tank location along a dirt access road. The staging and material storage area is located immediately east of the construction site on a 10,000 square foot disturbed gravel pad currently used for parking. The access road is located immediately north of the construction site. The construction area, staging area, material storage area, and access road are located on the site of a former rock quarry. A stand of spreading rush (*Juncus patens*), approximately 1,500 square feet in area, occurs in the vicinity of the proposed water tank site (Appendix E, Figure 3). The spreading rush stand was roughly estimated to support approximately 50% cover of spreading rush. The indicator status of spreading rush is facultative wetland (FACW), meaning it usually occurs in wetlands (estimated probability 67%-99%), but is sometimes found in non-wetlands (Lichvar, et. al. 2014). A wetland delineation reported an absence of wetland hydrology and wetland soils at the proposed new water tank site (BioMaAS 2014).

A shallow, intermittent drainage swale is present immediately east of the construction site (existing and proposed storage tank site). Vegetation within and around the drainage swale include coyote brush (*Baccharis pilularis*), coffeeberry (*Frangula californica*), wax myrtle (*Morella californica*), native and non-native grasses, spreading rush, bracken fern (*Pteridium aquilinum*), and ruderal species. The drainage swale originates at the gravel access road and flows south to the Quarry Pond (Appendix E, Figure 2). The proposed Project work area will not extend into this drainage swale.

The Quarry Pond is largely open water with dense emergent vegetation, primarily arroyo willow (*Salix lasiolepis*), cattails (*Typha spp.),* and bulrush (*Schoenoplectus californicus*). This pond provides habitat for known occurrences of CRLF and potentially WPT. CRLF and bullfrogs were detected at the Quarry Pond during draining activities conducted in 2013 and 2014 with regulatory agency approval. The San Francisco garter snake (SFGS) has been documented by Dr. Samuel McGinnis (McGinnis 1984) and Swaim Biological, Inc. (Swaim 2014) as occurring at various locations on the County property (APNs 086-180-060 and 086-160-060). Due to the sensitivity of SFGS information, observed locations cannot be listed. However, it is assumed that SFGS could be present within and adjacent to all waterbodies on the County property.

To the east of the construction site, a small, seasonally wet sediment basin is present on the inactive quarry floor, which discharges to a drainage ditch which flows along the east side of the access road, under Bean Hollow Road, and discharges onto the heavily vegetated Butano Creek flood plain.

The total footprint of potential ground disturbance from the Project consists of approximately 0.60 acres, including 0.03 acre of San Mateo County LCP jurisdictional wetland habitat, 0.34 acre of grassland/ruderal upland, and 0.23 acre disturbed gravel pad. **Table 5** lists the acreages of impacts by habitat type and proposed mitigation.

Table 5. Temporary and Permanent Habitat Impacts and Proposed Mitigation

Habitat Type	Impact Type	Impact Area (acres)	Proposed Mitigation	Mitigation Area (acres)
Seasonal Wetland (LCP Jurisdictional)	Permanent	0.03	Creation of wetland habitat from upland habitat	0.10
Grassland/Ruderal Upland	Permanent	0.10	None	N/A
Grassland/Ruderal Upland	Temporary	0.24	None	N/A
Disturbed Gravel Pad	Temporary	0.23	None	N/A
Total Impact Area		**0.60**	**Total Mitigation Area**	**0.10**

Potential disturbances associated with storage tank construction would result in permanent direct impacts to 0.03 acre (1,500 square-feet) of seasonal wetland habitat and 0.10 acre of upland grassland/ruderal habitat; all other Project activities would result in only temporary impacts to disturbed uplands in staging and construction areas (0.47 acres total temporary impact on uplands). An additional 0.10 acre (4,500 square-feet) of grassland/ruderal habitat will be converted to seasonal wetland habitat to mitigate for the permanent impacts to San Mateo County LCP wetlands.

Plants

Special-status plant species identified in the USFWS species list, CNDDB and CNPS database searches of the Project area (included in Appendix D) all have either no potential or a very low potential to occur. No sensitive plants were observed near the project site during the wetland delineation and biological surveys. Biological surveys were performed in March and April 2015, during peak blooming periods when special status plants were more easily identifiable, in order to maximize the likelihood of locating special status plant species [5]. Any special status plant species detected during subsequent site visits will be reported to the appropriate permitting agencies, and work in detected areas will not commence until it is determined that special status plants will not be impacted. Prior to construction activities, special status plants will be clearly marked/flagged or temporary construction fencing will be erected to designate the work area and delineate the areas to be avoided. Therefore, special-status plants would not be impacted by the proposed Project and no mitigation measures are required.

Fish

In the absence of erosion control and containment BMPs, activities involved with construction of the proposed new well and tank could result in temporary impacts to special-status fish species and their habitat. Species with the potential to occur in the Project vicinity are discussed below.

Central California Coast (CCC) Steelhead and Central California Coast (CCC) Coho Salmon. CCC steelhead (*Oncorhynchus mykiss*) are federally listed as threatened. They are known to occur in

[5] California Department of Fish and Game. 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.

Butano Creek; however, fish passage through Pescadero Marsh and lower Butano Creek is impeded by heavy accumulation of sediment and poor water quality (ESA 2004, CNDDB 2015a). CCC coho salmon (*Oncorhynchus kisutch*) are state and federally listed as endangered. CCC coho populations in the region have been severely reduced through habitat modification. Pescadero Creek and Butano Creek are listed as critical habitat for steelhead. Coho occur in Pescadero Creek with potential historical suitable habitat found in the Butano Creek system (NMFS 2010); however, passage from the Pacific Ocean to Butano Creek has been impeded by sedimentation in lower Butano Creek and Pescadero Marsh, such that portions of the creek often lack a defined channel suitable for fish passage. While the Project work area and access road do not contain habitat for either species, the Project site ultimately drains into Butano Creek, located approximately 0.3 miles from the proposed new well and tank location (Appendix E, Figure 2). Potential increases in turbidity or accidental leakage or spills of fuel or chemicals during Project implementation could impact these listed species. However, implementation of BMPs in Table 2 would minimize the potential for adverse impacts from construction activities.

Reptiles and Amphibians

Construction activities involved with construction of the water tank and well, such as ground disturbance from grading activities or removal of seasonal wetland vegetation, could result in permanent and temporary impacts to special-status reptiles and amphibians and their habitat. Species with the potential to occur in the proposed Project Area are discussed below.

California Red-Legged Frog. The California red-legged frog (*Rana draytonii*) is federally listed as threatened and is a state species of special concern. California red-legged frog adults and/or larvae have been observed in the Butano Creek channel and seasonal ponds in the Project vicinity, including at the Quarry Pond located within 200 feet of the construction site. Wetlands within the Project Area also do not provide suitable breeding habitat because there are no pools or ponds of suitable depth or duration to support California red-legged frog breeding. However, red-legged frogs may occur within the Project area primarily as nonbreeders and foragers. During the summer, when the Project would be implemented, most red-legged frog activity is expected to be focused in wetland and riparian habitats, and due to the absence of vegetative cover, frogs are highly unlikely to be present in the construction, staging, and material storage areas during the summer.

Construction activities associated with the proposed Project would permanently affect up to 0.13 acre of potential foraging and dispersal habitat for red-legged frogs. This area includes 0.03 acre of San Mateo County LCP jurisdictional wetland habitat and 0.10 acre of upland grassland habitat at the new storage tank site. An additional 0.24 acre of upland grassland habitat would be temporarily disturbed by construction of the proposed new well and tank. The Project would temporarily affect 0.23 acre of heavily disturbed gravel and dirt material storage and parking areas, which may be used as basking habitat or as a migrational pathway. Direct mortality of frogs may occur during ground disturbance activities within the wetland and upland habitats or by Project vehicle operation and staging.

High-quality breeding habitats for this species are located in the Project vicinity, though not in the Project area itself. Although the Project will temporarily and permanently disturb foraging and dispersal habitat within the upland grassland found within the construction area, this is not considered a significant impact as there is an abundance of other suitable forage and dispersal habitat in the annual grasslands that surround the Project site. As detailed in Section 3.4b, below, Project impacts on wetland vegetation would be mitigated through the implementation of **Mitigation Measure BIO-5** by requiring creation of seasonal wetland habitat in an area dominated by predominantly non-native, upland habitat. Project construction, staging, and material storage

areas do not support any aquatic habitat for the California red-legged frog. As a result, there is a very low likelihood of injury or mortality of this species in the Project area. However, with implementation of the BMP measures included in Table 2 and **Mitigation Measure BIO-1**, impacts on California red-legged frog would be less than significant.

San Francisco Garter Snake. The San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) is state and federally listed as endangered and is also a state fully protected species. The San Francisco garter snake population in San Mateo County has been severely reduced throughout most of its range due to habitat loss and development; however, the Project region still supports an extant population of the species. There are nine CNDDB records for the San Gregorio USGS quadrangle, and the majority of these occurrences are associated with Pescadero Marsh and surrounding ponds. San Francisco garter snakes have been documented within the County property and in close proximity to the Project area (CNDDB 2015a, Swaim 2014, McGinnis 1984). Therefore, San Francisco garter snakes are expected to occur within the Project area. The presence of red-legged frogs (a favored prey item of the San Francisco garter snake) in the adjacent Quarry Pond further increases the likelihood that San Francisco garter snakes could occur within the Project area.

San Francisco garter snakes may use the construction, staging, and material storage area for foraging and dispersal. Further, this species can disperse into surrounding upland habitats during summer to prey on amphibians aestivating in small mammal burrows (Barry 1993). Garter snakes could potentially forage on amphibians in Butano Creek or nearby ponds and disperse and/or aestivate throughout the Project area. Therefore, the San Francisco garter snake is considered potentially present throughout the Project area. However, due to the presence of minimum vegetative cover, garter snakes are likely to occur in the construction, staging, and material storage areas only infrequently.

Impacts on San Francisco garter snake would be similar to those described above for California red-legged frog. Project activities associated with the Project would permanently affect up to 0.13 acre of potential foraging and dispersal habitat for garter snakes. This area includes 0.03 acre of San Mateo County LCP jurisdictional wetland habitat and 0.10 acre of upland grassland habitat. An additional 0.24 acre of upland grassland habitat would be temporarily disturbed by construction of the proposed new well and tank. The Project would temporarily affect 0.23 acre of heavily disturbed gravel and dirt material storage and parking areas, which may be used as basking habitat or as a migrational pathway. In the absence of avoidance and minimization measures, direct mortality of San Francisco garter snakes could result from ground disturbance and equipment operation associated with construction and site restoration.

Although the Project will temporarily and permanently disturb foraging and dispersal habitat within the upland grassland found within the construction area, this is not considered a significant impact as there is an abundance of other suitable forage and dispersal habitat in the annual grasslands that surround the Project site. As detailed in Section 3.4b, below, Project impacts on wetland vegetation would be mitigated through the implementation of **Mitigation Measure BIO-5** by requiring creation of seasonal wetland habitat in an area dominated by predominantly non-native, upland habitat. Project construction, staging, and material storage areas do not support any aquatic habitat. As a result, there is a low likelihood of injury or mortality of this species in the Project area. However, with implementation of the BMP measures included in Table 2 and **Mitigation Measure BIO-2**, impacts on San Francisco garter snake would be less than significant.

Western Pond Turtle. The western pond turtle (*Emys marmorata*) is listed as a Species of Special Concern (SSC) by the CDFW. It is known to occur in the Project vicinity, at the Pescadero Creek Estuary/Lagoon and has the potential to occur in the Project area. It is likely to utilize the aquatic

habitats in the Project vicinity for foraging, basking, and mating. Females tend to seek out open areas with sparse, low vegetation (annual grasses and herbs), low slope angle, and dry hard soil for nest sites (USFS 2009). There are no CNDDB records for western pond turtle in the San Gregorio USGS quadrangle; however, suitable habitat exists within 200 feet of the Project area within and adjacent to the Quarry Pond.

Impacts on western pond turtles would be similar to those described above for California red-legged frog. Project activities associated with the Project would permanently affect up to 0.13 acre of potential foraging and dispersal habitat for western pond turtle. This area includes 0.03 acre of San Mateo County LCP jurisdictional wetland habitat and 0.10 acre of upland grassland habitat. An additional 0.24 acre of upland grassland habitat would be temporarily disturbed by construction of the proposed new well and tank. The Project would temporarily affect 0.23 acre of heavily disturbed gravel and dirt material storage and parking areas, which may be used as basking habitat or as a migrational pathway. In the absence of avoidance and minimization measures, direct mortality of pond turtles could result from ground disturbance and equipment operation associated with construction and site restoration. Although the Project will temporarily and permanently disturb foraging and dispersal habitat within the upland grassland found within the construction area, this is not considered a significant impact as there is an abundance of other suitable forage and dispersal habitat in the annual grasslands that surround the Project site. As detailed in Section 3.4b, below, Project impacts on wetland vegetation would be mitigated through the implementation of **Mitigation Measure BIO-5** by requiring creation of seasonal wetland habitat in an area dominated by predominantly non-native, upland habitat. Project construction, staging, and material storage areas do not support any aquatic habitat. As a result, there is a low likelihood of injury or mortality of this species in those portions of the Project area.

However, implementation of the Project avoidance, minimization, and mitigations measures listed for California red-legged frog and San Francisco garter snake identified above would minimize impacts on this species to a **less than significant** level.

Mammals

Activities involved with construction of the proposed new well, tank, and associated structures, could result in temporary impacts to special-status mammals and their habitat. Special-status mammal species with the potential to occur in the proposed Project area are discussed below.

San Francisco Dusky-Footed Woodrat. The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a state species of special concern. Woodrats are known for their large terrestrial stick houses, some of which can last for decades (Linsdale and Tevis, 1951). Their nests occur within the stick houses, and their breeding season extends from December to September (CDFG 2009). There are no CNDDB records for this species in the San Gregorio USGS quadrangle. However, San Francisco dusky-footed woodrat is widely distributed in San Mateo County and is expected to occur in the coastal scrub and riparian habitats within the Project vicinity. No woodrat nests were observed in the work area or along the access road during biological surveys conducted in April 2015 (Appendix E).

Project construction, staging, and material storage areas do not support any riparian or coastal scrub habitat, and support little vegetation or other cover for this species. As a result, there is a low likelihood of injury or mortality of this species in the Project area.

However, with implementation of BMPs identified in Table 2 and **Mitigation Measures BIO-3a through 3b**, which require implementation of pre-construction surveys, avoidance, and minimization measures, impacts on this species would be less-than-significant.

Pallid Bat. The pallid bat (*Antrozous pallidus*) is a state species of special concern. It has the

potential to occur in the Project area but has not been identified in the area since 1945 (CNDDB 2015). Pallid bats have the potential to utilize the grasslands and riparian habitats in the Project vicinity for foraging. However, owing to the absence of cavities or deep bark crevices in the trees in the Project area, the species is not expected to roost in the Project area. There are no CNDDB records for pallid bats in the San Gregorio USGS quadrangle.

Project activities associated with the Project would temporarily or permanently affect up to 0.37 acres of potential foraging habitat for pallid bats. However, this species is not expected to roost in the Project area, and therefore no individuals would be injured or killed during Project implementation.

With implementation of the Project BMPs in Table 2, impacts on this species would be less than significant.

Birds

Activities involved with construction of the proposed new well, tank, and associated structures, could result in temporary impacts to special-status birds and their habitat. Avian species with the potential to occur in the proposed Project area are discussed below.

White-tailed Kite, Saltmarsh Common Yellowthroat, and Other Nesting Migratory Birds. The white-tailed kite (*Elanus leucurus*) is a state fully protected species and has been observed in the Project vicinity (Appendix E). The white-tailed kite is a year-round resident of coastal California and is found in association with the herbaceous and open stages of a variety of habitat types, including open grasslands, meadows, emergent wetlands, and agricultural lands. Stick nests are built near the top of willows, oaks, or other trees in dense stands located adjacent to suitable foraging areas. Breeding typically occurs from February through October. The species forages in undisturbed open grasslands, meadows, farmlands, and emergent wetlands, and it is seldom observed more than 0.5 mile from an active nest during the breeding season. Although there are no CNDDB records for white-tailed kite in the San Gregorio USGS quadrangle, this species has the potential to occur in the Project area and may utilize adjacent riparian habitat for nesting and surrounding grasslands for foraging.

The saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) is a small warbler listed as a SSC by the CDFW, and is a subspecies of the common yellowthroat. The saltmarsh common yellowthroat will utilize moist to upland habitats, including isolated patches of habitat such as swales and seeps. Known to breed in both brackish and freshwater marshes from mid-March to late July, yellowthroats typically build nests near the ground in grasses, herbaceous vegetation, cattails, tules, and some shrubs (Evens 2008). The CNDDB cites one possible occurrence of saltmarsh common yellowthroat in Pescadero Marsh within one mile of the project site (CNDDB 2015). This species has the potential to occur within the riparian and coastal scrub habitats found within the Project vicinity, including the adjacent Quarry Pond.

There is also potential for other birds protected under the Migratory Bird Treaty Act to nest in the Project area. The County will implement **Mitigation Measure BIO-4** to reduce impacts of the proposed Project on nesting white-tailed kite, saltmarsh common yellowthroat, and other migratory birds through implementation of pre-construction surveys and establishing no-work buffer areas, as necessary. With implementation of this mitigation measure, impacts would be reduced to a less-than-significant level.

In summary, project-related construction activities could have a potentially significant impact on CCC steelhead, CCC salmon, California red-legged frog, San Francisco garter snake, San Francisco dusky-footed woodrat, pallid bat, white-tailed kite, saltmarsh common yellowthroat, and other nesting migratory birds through temporary or permanent habitat modification or direct injury or

death. With the implementation of BMPs identified in Table 2, as well the implementation of **Mitigation Measures BIO-1** through **Mitigation Measure BIO-5**, the potential for adverse impacts on these species would be reduced to a **less than significant** level.

Mitigation Measure BIO-1: California red-legged Frog Protection Measures

The County will implement the following measures to avoid and minimize impacts on California red-legged frogs:

- Prior to Project implementation, the County shall submit to the USFWS and CDFW for its review the qualifications of proposed wildlife biologist(s) who will perform pre-activity surveys and on-site monitoring.
- A USFWS- and CDFW-approved biologist (qualified biologist) will be present during initial ground-disturbing activities (i.e., clearing and grubbing) to monitor for individual California red-legged frogs. The biologist will also be present during any other Project activities that, in the biologist's opinion, could potentially result in take. The biologist(s) shall have the authority to stop any work that may result in the take of this species. The on-site biologist will be the contact for any employee or contractor who might inadvertently kill or injure a red-legged frog or anyone who finds a dead, injured, or entrapped California red-legged frog.
- No more than twenty-four (24) hours prior to the date of initial ground disturbance, a pre-activity survey for the California red-legged frog will be conducted by a qualified biologist at the Project site. The survey will consist of walking the Project limits and within the Project site to ascertain the possible presence of the species. The qualified biologist will investigate all potential areas that could be used by the California red-legged frog for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as those of California ground squirrels (*Spermophilus beecheyi*) or gophers (*Thomomys bottae*). If any adults, subadults, or juveniles are found, all work will cease and the qualified biologist will contact the USFWS and CDFW immediately for guidance.
- The qualified biologist will conduct employee education training for employees working on earthmoving and/or other Project activities. Personnel will be required to attend the presentation which will describe the California red-legged-frog, avoidance, minimization, and conservation measures, legal protection of the animal, and other related issues. All attendees will sign an attendance sheet along with their printed name, company or agency, email address, and telephone number.
- The County will minimize adverse impacts to the California red-legged frog by limiting, to the maximum extent possible, the number of access routes, equipment staging, storage, parking, and stockpile areas. Prior to the date of initial ground disturbance at the Project site, equipment staging areas, site access routes, and transportation equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed will be identified, surveyed by the qualified biologist, and clearly marked with 5-ft tall bright orange plastic fencing or other highly visible material. The fencing will be inspected by the qualified biologist and maintained daily

until the last day that Project equipment is at the Project site.

- Ground-disturbing activities will be avoided between November 1 and March 31 because that is the time period when California red-legged frogs are most likely to be moving through upland areas.
- To minimize harassment, injury death, and harm in the form of temporary habitat disturbances, all Project-related vehicle traffic will be restricted to established roads and access areas, equipment staging, storage, parking, and stockpile areas. These areas will be included in pre-activity surveys and, to the maximum extent possible, established in locations disturbed by previous activities to prevent further adverse impacts. Project-related vehicles will observe a 15 mile per hour speed limit while in the Project work area. Off-road traffic outside of designated and fenced Project work areas will be prohibited.
- When a California red-legged frog is encountered in the Project area, all activities which have the potential to result in the harassment, injury, or death of the individual will be immediately halted. The qualified biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse impacts to the animal.
- The County will not apply insecticides or herbicides at the Project site during Project implementation or long-term operational maintenance where there is the potential for these chemical agents to enter creeks, streams, waterbodies, or uplands that contain potential habitat for the California red-legged frog.
- California red-legged frog may be attracted to structures that provide cavities such as pipes; therefore, all pipes, culverts, or similar structures that are stored at the site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the Project foreman/manager before the pipe is buried, capped, or otherwise used or moved. If a California red-legged frog is discovered inside a pipe, the biologist (or a member of the Project crew, if the biologist is not on-site) will watch the individual until it has moved out of the Project work area.
- To the maximum extent practicable, no Project activities will occur during rain events or within 24-hours following a rain event. Prior to Project activities resuming, a qualified biologist will inspect the Project area and all equipment/materials for the presence of California red-legged frogs. The animals will be allowed to move away from the Project site of their own volition.
- To the maximum extent practicable, night-time Project activities will be minimized or avoided by the County. Because dusk and dawn are often the times when the California red-legged frog is most actively moving and foraging, to the maximum extent practicable, earthmoving and other Project activities will cease no less than 30 minutes before sunset and will not begin again prior to no less than 30 minutes after sunrise. Artificial lighting at a Project site will be prohibited during the hours of darkness.
- Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form will not be used at the Project site

because California red-legged frogs can become entangled and trapped in them. Any such material found on site will be immediately removed by the qualified biologist, Project personnel, or County contractors. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials will not be used.

- Prior to pre-activity surveys, the Project shall enclose the construction and staging areas with a 3-foot-high silt fence or similar material, of which approximately 6 inches is buried underground, that will remain in place during well and tank construction and site restoration in order to prevent red-legged frogs from entering the impact area. Escape ramps, funnels, or other features that allow animals to exit the construction area, but which will prohibit the entry of such animals, shall be provided in the exclusion fencing. A qualified biologist shall conduct a pre-activity survey of the fence installation area immediately prior to (i.e., the day of) the commencement of installation and shall be on-hand to monitor fence installation. Undercut fences and split, torn, slumping, or weathered fabric shall be repaired by the contractor immediately. Dirt and materials shall not be allowed to accumulate more than ½ the height of the fence. The exclusion fencing shall be inspected daily by Project personnel and maintained for the duration of Project implementation.

Mitigation Measure BIO-2: San Francisco Garter Snake Protection Measures

The County will implement the following measures to avoid and minimize impacts on San Francisco garter snakes:

- Prior to Project implementation, the County shall submit to the USFWS and CDFW for its review the qualifications of proposed wildlife biologist(s) who will perform pre-activity surveys and on-site monitoring.
- A qualified biologist will be present during initial ground-disturbing activities (i.e., clearing and grubbing) to monitor for individual garter snakes. The biologist will also be present during any other Project activities that, in the biologist's opinion, could potentially result in take. The biologist(s) shall have the authority to stop any work that may result in the take of this species. The on-site biologist will be the contact for any employee or contractor who might inadvertently kill or injure a garter snake or anyone who finds a dead, injured, or entrapped San Francisco garter snake.
- Immediately prior to the initiation of Project activities on any day in which activities are performed that have potential for take of the San Francisco garter snake, a qualified biologist will conduct daytime surveys throughout the Project site. If a San Francisco garter snake is observed within the Project work area, either during this survey or at any time, Project activities that could potentially harm the individual shall be stopped immediately. The biologist (or a member of the Project crew, if the biologist is not on-site) will watch the individual until it has moved out of the work area. No individuals of this species will be relocated without explicit USFWS approval; however, if the snake will not leave the area on its own, the biologist will contact the USFWS to determine if moving any of the individuals is appropriate. If the USFWS approves moving animals, the

biologist and USFWS will identify a suitable relocation site, and the County will ensure the qualified biologist is given sufficient time to move the animals from the work site before ground disturbance is initiated.

- Project-related vehicles will observe a 15 mile per hour speed limit while in the Project work area.
- San Francisco garter snakes may be attracted to structures that provide cavities such as pipes; therefore, all pipes, culverts, or similar structures that are stored at the site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the Project foreman/manager before the pipe is buried, capped, or otherwise used or moved. If a San Francisco garter snake is discovered inside a pipe, the biologist (or a member of the Project crew, if the biologist is not on-site) will watch the individual until it has moved out of the Project work area.
- Prior to pre-activity surveys and consistent with exclusion fencing for California red-legged frog, the Project shall enclose the construction and staging areas and proposed mitigation site with a 3-foot-high silt fence or similar material, of which approximately 6 inches is buried underground, that will remain in place during Project implementation in order to prevent San Francisco garter snakes from entering the construction and staging areas. Escape ramps, funnels, or other features that allow animals to exit the construction area, but which will prohibit the entry of such animals, shall be provided in the exclusion fencing. A qualified biologist shall conduct a pre-activity survey of the fence installation area immediately prior to (i.e., the day of) the commencement of installation and shall be on-hand to monitor fence installation. The vegetation on the non-construction side of the fence shall be maintained at a height of 4 inches or less to prevent snakes from maneuvering over the fence. Undercut fences and split, torn, slumping, or weathered fabric shall be repaired by the contractor immediately. Dirt and materials shall not be allowed to accumulate more than ½ the height of the fence. The exclusion fencing shall be inspected daily by Project personnel and maintained for the duration of Project implementation.

Mitigation Measure BIO-3a: Conduct Pre-construction Survey for Dusky-footed Woodrat Houses

No less than 7 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, a qualified biologist will survey the work areas scheduled for construction. The survey shall cover the access roads, work area, and a 50-foot buffer around the work area. Any dusky-footed woodrat houses found shall be marked in the field with flagging tape and their locations will be recorded with GPS. If a dusky-footed woodrat house is identified in a work area, Mitigation Measure BIO-3b will be implemented by the County.

Mitigation Measure BIO-3b: Avoid or Minimize Disturbance to Dusky-footed Woodrat Houses

If a dusky-footed woodrat house is identified in a work area, the County shall attempt to preserve the house and maintain an intact dispersal corridor between the house and undisturbed habitat. An adequate dispersal corridor would be

considered to be a minimum of 50 feet wide and have greater than 70% vegetative cover. Even if such a corridor is infeasible, the County will avoid physical disturbance of the nest.

Mitigation Measure BIO-4: Measures to Protect White-tailed Kite, Saltmarsh Common Yellowthroat, and Other Nesting Migratory Birds

For activities occurring between February 15 and August 31, a qualified biologist will survey the Project area for nesting birds. This survey will occur no less than 5 days prior to starting work. If a lapse in Project-related work of 2 weeks or longer occurs, another focused survey will be conducted before Project work can be reinitiated. If nesting birds are found, a no-work buffer will be established around the nest and maintained until the young have fledged (generally 300 feet for raptors and 100 feet for other nesting birds). A qualified biologist will identify an appropriate buffer based on a site specific-evaluation. Work will not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival.

b.	Have a significant adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		**X**		

A wetland delineation (Appendix F) of the Project site was conducted by BioMaAS, Inc. on November 12, 2014, to identify habitat types and to assess the potential for the presence of wetlands or plant communities within the Project area that may fall under the jurisdiction of various federal, state, or local regulatory agencies (BioMaAS 2014). Dominant plant species were identified, and areas supporting significant hydrophytic vegetation or evidence of wetland hydrology were described and mapped.

The sensitive habitats component of the San Mateo County Local Coastal Program (LCP) defines a 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 (County of San Mateo 2013). The wetland delineation reported a stand of spreading rush (*Juncus patens*), approximately 1,500 square feet in area, occurring in the vicinity of the proposed water tank site (Appendix E, Figure 3). The spreading rush stand was roughly estimated to support approximately 50% cover of spreading rush. Although this native species is often seen in dry soil conditions, it is also encountered in moist soil conditions. The indicator status of spreading rush is facultative wetland (FACW), meaning it usually occurs in wetlands (estimated probability 67%-99%), but is sometimes found in non-wetlands (Lichvar, et. al. 2014). The County, under the San Mateo County LCP, and following the California Coastal Commission guidelines, has the discretion to identify any feature as a wetland if it satisfies just one of the three wetland parameters including wetland hydrology, wetland soils, or a preponderance of wetland vegetation. As such, these features will likely fall under the jurisdiction of the California Coastal Commission under the auspices of the San Mateo County LCP because they are clearly dominated by wetland plant species. However, it is not anticipated that this wetland will fall under the jurisdiction of the U.S. Army Corps of Engineers or the Regional Water Quality Control Board given the absence of wetland hydrology and wetland soils in the Project area (BioMaAS 2014).

The total footprint of potential ground disturbance from the proposed Project is approximately 0.60 acres. Disturbance associated with installation of the new water storage tank would result in

permanent and temporary direct and indirect impacts to 0.03 acres of LCP jurisdictional wetland habitat.

Impacts due to removal of wetland vegetation during construction would result in a permanent loss of functions and values of wetland habitat protected under the San Mateo County Local Coastal Program. Project impacts on wetland vegetation would be potentially significant. However, implementation of **Mitigation Measure BIO-5** would reduce these impacts to **less than significant** by requiring creation of seasonal wetland habitat in an area dominated by predominantly non-native, upland habitat.

Mitigation Measure BIO-5: Create Seasonal Wetland Habitat

The County will mitigate for unavoidable impacts on seasonal wetland habitat due to the proposed Project by creating wetland habitat from upland habitat in close proximity to the Project area. The County anticipates 0.03 acre of permanent impacts to Local Coastal Program (LCP) jurisdictional wetland habitat and thus, shall create 0.1 acre of wetland habitat (3:1 ratio). To the extent feasible, wetland habitat creation will occur concurrent with implementation of the Project.

Wetland vegetation to be created at the mitigation site will include native FACW and OBL species, such as spreading rush, Pacific rush, and Harford's sedge.

Prior to the start of Project construction, the County will develop and implement a Habitat Mitigation and Monitoring Plan (HMMP) for creation of wetland habitat. The Habitat Mitigation and Monitoring Plan will be prepared by a qualified restoration ecologist and will provide the following:

- A summary of wetland impacts and the proposed mitigation
- Goals of the mitigation to achieve no net loss of habitat functions and values
- The location of mitigation site and description of existing site conditions
- Mitigation design including:
    - Existing and proposed site hydrology, geomorphology, and geotechnical stability, if applicable
    - Grading plan if appropriate, including site stabilization features
    - Soil amendments and other site preparation elements, as appropriate
    - Planting plan and species list
    - Salvage plan for on-site wetland plants
    - Irrigation and maintenance plan
    - Restoration schedule
- Monitoring plan (including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc.)
- A contingency plan for mitigation elements that do not meet performance or final success criteria within 3 years; this plan will include specific triggers for remediation if performance criteria are not being met.

The County will implement the HMMP concurrently with implementation of the

	proposed Project, such that mitigation elements are installed at Project completion. The success criteria for revegetation shall be 75% survival at 3 years. Remedial actions, such as replanting, will be implemented according to the HMMP contingency plan to ensure that the success criteria are met.				
c.	Have a significant adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				**X**
As described in the response to question 3.4b, above, a wetland delineation (Appendix F) of the Project site was conducted by BioMaAS, Inc. on November 12, 2014, to identify habitat types and to assess the potential for the presence of wetlands or plant communities within the Project area that may fall under the jurisdiction of various federal, state, or local regulatory. The wetland delineation concluded that that this wetland is unlikely to fall under the jurisdiction of the U.S. Army Corps of Engineers or the Regional Water Quality Control Board given the absence of wetland hydrology and wetland soils in the Project area (BioMaAS 2014). Therefore, proposed Project is expected to have **no impact** on federally protected wetlands as defined by Section 404 of the Clean Water Act.					
d.	Interfere significantly with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?			**X**	
The proposed Project area does not contain aquatic habitat. As detailed in response to question 3.4a, above, the Project will temporarily and permanently disturb up to 0.60 acre of potential foraging and dispersal habitat within the seasonal wetland and upland grassland found within the construction area. However, this is not considered a significant impact as there is an abundance of other suitable forage and dispersal habitat in the wetlands and annual grasslands that surround the Project site. The proposed Project is expected to have **a less than significant** impact on the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites.					
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including the County Heritage and Significant Tree Ordinances)?				**X**
The proposed Project would not involve the cutting of heritage or significant trees as defined in the County Heritage Tree and Significant Tree Ordinance as no tree cutting would be required for the					

proposed Project. The County General Plan and the San Mateo County LCP contain numerous goals, policies, and action items to protect biological resources. The proposed Project incorporates a variety of BMPs, avoidance and minimization measures and mitigation to avoid or minimize impacts to sensitive habitats, wildlife, and fisheries resources. Thus, the Project is consistent with the General Plan and San Mateo County LCP's priority on conservation of biological resources, and there would be **no impact** related to conflicts with local policies or ordinances for biological protection (including the County Heritage and Significant Tree Ordinances).					
f.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, other approved local, regional, or State habitat conservation plan?				**X**
The proposed Project is not located within an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan. Therefore, it is expected to have **no impact** on provisions of these plans.					
g.	Be located inside or within 200 feet of a marine or wildlife reserve?				**X**
The proposed Project would not be located inside or within 200 feet of a marine or a wildlife reserve. The proposed Project would be located approximately 0.25 mile south of the Pescadero Marsh Natural Preserve and would be separated from the Preserve by Pescadero Creek Road. Therefore, the proposed Project is expected to have a **no impact** on a marine or wildlife reserve.					
h.	Result in loss of oak woodlands or other non-timber woodlands?				**X**
Oak woodlands or non-timber woodlands are not present within the proposed Project area. Therefore, it is expected to have **no impact** on oak woodlands or non-timber woodlands.					

3.5 CULTURAL RESOURCES. Would the project:	Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a. Cause a significant adverse change in the significance of a historical resource as defined in Section 15064.5?				**X**

A significant impact would occur if the Project could cause a substantial adverse change to a historical resource, including historic-period architectural resources or the built environment such as buildings, structures, and objects. A substantial adverse change could result from physical demolition, destruction, relocation, or alteration of the resource.

Holman & Associates conducted a reconnaissance-level cultural resources assessment (Appendix G) to determine the presence of any cultural resources on the Project site and vicinity. As part of this assessment, a records search was conducted by the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University. The study included a review of records and maps on file at the NWIC and the records search consisted of 800 meter (1/2 mile) radius of the Project site.

The historic resources search included recorded resources in the California Inventory of Historical Resources (1976), the Office of Historic Preservation Historic Properties Directory (April 2012), and a check of historic maps at the NWIC, which resulted in the 1862 plat map of *Rancho Butano*.

Based on the records search, no historical resources were recorded within the search radii of the Project site. Furthermore, the only buildings or structures within the Project area consist of the existing CSA 11 water supply infrastructure (water wells, storage tank, and chlorine building). Therefore, the Project would not affect any historic-period buildings or structures and the Project would have **no impact** on historical resources.

b. Cause a significant adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		**X**		

The Project site is within the traditional territory of the Ohlone people. Generally referred to by ethnographers as Costanoan, the Ohlone were "hunters and gatherers" and adapted to and managed their generally abundant local environment so well that many places were continuously occupied for thousands of years. The Ohlones occupied a big territory ranging from San Francisco Bay to Monterey. The basic social unit was the tribe, a small independent group of usually related families occupying a specific territory and speaking the same dialect. The Project vicinity was likely either occupied sparsely by small permanent villages and/or seasonally occupied villages. The region was used for habitation and certain locales were used for gathering and processing food resources.

Based on the records search, no historical resources are recorded in, adjacent to, or within1/2-mile (800 meter) of the Project area. A pedestrian survey for archaeological resources was conducted on January 7, 2015 on all accessible portions of the Project area. Surface visibility varied from fair in small spots to nil, but was generally poor due to the site's thick vegetation and duff, and most of the previously developed impact zone is covered by fill and gravel. No native soil was visible within the developed zone of the Project area. No evidence of archaeological resources was found in the Project area. Although poor visibility hampered the survey, the location would be expected to be of low archaeological sensitivity due to the previous development and disturbance caused by the

former quarry operations and subsequent County uses.

Given the above, it is anticipated that the proposed Project would have no impact on archaeological resources. However, despite the negative survey results, it is possible that subsurface deposits may exist. As such, the potential to encounter unknown archaeological resources remains and this impact would be potentially significant. Implementation of **Mitigation Measure CUL-1** which outlines practices to be implemented in the event of accidental discovery or resources, would reduce this impact to **less than significant**.

Mitigation Measure CUL-1: Unexpected Discovery of Cultural Resources

Not all cultural resources are visible on the ground surface. Prior to the start of construction or ground-disturbing activities, the County shall ensure all field personnel are educated of the possibility of encountering buried prehistoric or historic cultural resources. Personnel will be trained that upon discovery of buried cultural resources, work within 50 feet of the find must cease and the County will contact a qualified archaeologist immediately to evaluate the find. Once the find has been identified and found eligible for listing on the National Register of Historic Places or the California Register of Historical Resources, plans for treatment, evaluation, and mitigation of impacts to the find shall be developed and implemented according to the qualified archaeologist's recommendations. This measure will ensure that prehistoric and historic cultural resources are appropriately protected. Prehistoric or historic cultural materials that may be encountered include the following: unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains.

c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		**X**		

Based on the responses to questions 3.5a and 3.5b, above, no paleontological resources or unique geological features are known to occur on the Project site. Therefore, the potential for encountering such resources is low. Nonetheless, due to the potential for paleontological resources or unique geologic features to remain buried and unknown until the time of ground disturbance, this impact is considered potentially significant. Implementation of **Mitigation Measure CUL-1** would reduce this impact to a **less than significant** level.

d.	Disturb any human remains, including those interred outside of formal cemeteries?		**X**		

Based on the records search conducted, no human remains are known to occur on the Project site. Therefore, it is unlikely that human remains would be encountered in the Project area during project construction. However, given that depth of excavation at the proposed storage tank site would be up to 5 feet and the proposed new well will be drilled to a depth of about 287 feet, damage to human remains would be a potentially significant impact. Implementation of **Mitigation Measure CUL-2**, which requires that consultation with Native American Heritage Commission, this impact would be reduced to a **less-than-significant** level.

Mitigation Measure CUL-2: Inadvertent Discovery of Human Remains

If human remains are accidentally discovered during project construction activities, the County will implement the requirements of California Health and Human Safety

	Code section 7050.5. Potentially damaging excavation will cease in the area of the remains, with a minimum radius of 50 feet, and the San Mateo County Coroner will be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code section 7050.5[b]). If the Coroner determines the remains are those of a Native American, he or she will contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code section 7050[c]). Pursuant to the provisions of PRC section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods.				
e.	Cause a significant adverse change in the significance of a tribal cultural resource pursuant to Assembly Bill 52?			**X**	

Based on the records search conducted, no tribal cultural resources are known to occur on the Project site. Therefore, it is unlikely that tribal cultural resources would be encountered or significantly impacted in the Project area during project construction. Therefore, this impact is **less than significant**.

3.6 GEOLOGY AND SOILS. Would the project:	**Potentially Significant Impacts**	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
a. Expose people or structures to potential significant adverse effects, including the risk of loss, injury, or death involving the following, or create a situation that results in:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other significant evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42 and the County Geotechnical Hazards Synthesis Map.			**X**	

Due to its tectonic setting, the San Francisco Bay Area is prone to a high level of seismic activity. The risk of loss, injury, or death involving the rupture of an earthquake fault is greatest in dense population areas. While the Project area is located in an Alquist-Priolo Earthquake Fault Zone, as mapped by the California Geological Survey, no habitable structures are involved as part of the Project (California Geological Survey, 1982). Therefore, potential impacts related to earthquake fault rupture would be **less than significant**.

ii. Strong seismic ground shaking?			**X**	

Strong seismic ground shaking in the Project area could result from an earthquake along the San Gregorio Fault, an Alquist-Priolo Earthquake Fault Zone located in the Project vicinity. The risk of loss, injury, or death involving strong seismic ground shaking is greatest in dense population areas. As stated above, the proposed Project does not involve habitable structures that would be subject to major structural damage or could create a public health hazard. Therefore, potential impacts related to strong seismic ground shaking would be **less than significant**.

iii. Seismic-related ground failure, including liquefaction and differential settling?			**X**	

The Project area has been mapped as having low susceptibility to liquefaction (USGS 2005). The County of San Mateo's Earthquake Liquefaction map shows that all areas have a low susceptibility to liquefaction (County of San Mateo 2005).

As stated above, the proposed Project does not involve habitable structures that would be subject to major structural damage or could create a public health hazard. Furthermore, a geotechnical engineering study of the project site was conducted to identify a location for the proposed new water storage tank in order to minimize the potential for liquefaction and differential settling (Carlton Engineering 2014). Two (2) potential storage tank locations were explored; a preferred site adjacent to the existing storage tank and an alternative site located approximately 250 feet northeast of the existing storage tank. Based on the results of the geotechnical analysis, the preferred tank site was determined to be the best option due to liquefaction potential in the alternative site.

The new storage tank is proposed to be constructed at the preferred tank site. Due to the presence of potentially compressible near-surface clayey soils at the preferred tank site, the tank footprint will be

excavated to a depth of 5 feet below the proposed finish grade of the tank invert to reduce the potential for settlement. The foundation will then be replaced with engineered fill. Therefore, the potential impacts related to seismic-related ground failure would be **less than significant**.				
iv. Landslides?			**X**	
The proposed Project area is located in a region categorized as "few landslides" (USGS 1998). These are areas that contain few, if any, large mapped landslides. Locally, they contain scattered small landslides and questionably identified larger landslides (USGS 1998). The land within the Project area is level and does not contain habitable structures that would be subject to major structural damage or create a public health hazard. Therefore, potential impacts related to landslides would be **less than significant**.				
v. Coastal cliff/bluff instability or erosion? Note: This question is looking at instability under current conditions. Future, potential instability is looked at in Section 7 (Climate Change).				**X**
The proposed Project is not located near a coastal cliff or bluff. **No impacts** are expected to occur as a result of the proposed Project.				
b. Result in significant soil erosion or the loss of topsoil?			**X**	
Ground disturbance associated with construction of the new municipal water well and storage tank includes excavation and grading on the site of a former rock quarry. During Project construction, there is potential for erosion. Project construction activities are anticipated to occur during the summer, outside of the rainy season when erosion could be more substantial. Implementation of BMP-10 (10.29 Timing of Work) and BMP-4 (Construction Entrances and Perimeter), and site restoration measures such as hydroseeding with native grass (BMP-17) would further reduce any impacts associated with erosion. As a result, with implementation of these BMPS and restoration measures, this impact would be **less than significant**.				
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, severe erosion, liquefaction or collapse?			**X**	
Soils underlying the Project area include (NRCS 1961, NRCS 2015) Colma sandy loam, steep, eroded. This soil type is relatively uniform, well drained, a high erosion hazard and low expansivity. The topography of the Project area is generally level. As stated above, the Project area is located in a region categorized as "few landslides" (USGS 1998). Additionally, they have generally low susceptibility to liquefaction (USGS 2005, County of San Mateo 2005). As previously stated in response to question 3.6a, the Project does not involve habitable structures that would be subject to major structural damage or could create a public health hazard. Therefore, the potential impacts related to on- or off-site landslide, lateral spreading, subsidence, severe erosion, liquefaction or collapse are expected to be **less than significant**.				
d. Be located on expansive soil, as noted in the 2010 California Building Code, creating significant risks to life or property?			**X**	

The soils within the Project area are considered to contain less than 50% clay with high swelling potential (Olive, et. al. 1989 in CSELandscapeArchitect.com). Additionally, a geotechnical study of the Project area (Carlton Engineering 2014) found that the proposed water storage tank site consists of subgrade materials that transition from medium-dense to dense clayey sand. Due to the presence of potentially compressible near-surface clayey soils, the tank footprint will be over-excavated to a depth of 5 feet below the proposed finish grade of the tank invert to reduce the potential for settlement. For this reason and those described in response to questions 3.6a and 3.6c, the proposed Project would have a **less than significant** impact on structures creating significant risks to life or property.				
e. 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?				**X**
Septic tanks or alternative wastewater disposal systems would not be installed as part of the proposed Project. **No impacts** are expected to occur as a result of the proposed Project.				

3.7 CLIMATE CHANGE. Would the project:	Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas (GHG) emissions (including methane), either directly or indirectly, that may have a significant impact on the environment?			X	

In 2010, BAAQMD adopted updated thresholds in particular for GHG emissions from operation projects (BAAQMD 2010a). At this time, due to pending lawsuits, BAAQMD has yet to recommend use of these thresholds. However, these thresholds are based on substantial evidence and are used for this analysis. **Table 6** below provides the BAAQMD's significance criteria for analysis of GHG impacts, including cumulative impacts.

Table 6. Applicable BAAQMD CEQA Thresholds of Significance for GHGs

Pollutant	Operational Significance Thresholds
GHGs—projects other than stationary sources	a) Compliance with qualified GHG reduction strategy **OR** b) 1,100 metric tons (MT) of carbon dioxide equivalent (CO_2e) per year **OR** c) 4.6 MT CO_2e/service population (residents and employees) per year

Source: BAAQMD 2010

The emissions associated with project construction activities are 23.74 metric tons of CO_2 equivalents (CO_2e) per year. These emissions were estimated using the California Emission Estimator Model (CalEEMod) version 2013.2.2 which uses estimates from CARB's models for off-road vehicles (In-Use Offroad Equipment Model and OFFROAD2007) and EMFAC2011. For this model run, it was assumed that the following equipment would operate for 8 hours per day: 1 excavator, 1 loader, 1 drill rig, and 1 forklift. The number of hauling trips was estimated to be 60 round trips to the Corinda Los Trancos Landfill (formerly referred to as Ox Mountain Sanitary Landfill) disposal site with a conservative trip length of 40 miles per trip. The emissions included 10 trips for worker commutes and assumed a trip length of 25 miles round trip.

BAAQMD does not have a construction-phase threshold for CO_2 emissions. However, the emissions would result in 23.74 metric tons of CO_2 equivalent emissions in 2016, which is well below the BAAQMD threshold of 1,100 metric tons per year. Thus, the Project's construction emissions are not a large one-time contributor of GHG emissions. The Project would not create a new permanent sources of GHG emissions, and would therefore not conflict with any plans or policies adopted to reduce GHG emissions. Impacts related to generation of GHG emissions would be **less than significant**.

b. Conflict with an applicable plan (including a local climate action plan), policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

The State has implemented Assembly Bill (AB) 32 to reduce GHG emissions. The Project does not pose any conflict with the most recent list of CARB's early action strategies nor is it considered as one of the sectors at which measures are targeted. The Scoping Plan Update mentions water as a key focus area

and calls for effective regional integrated planning that maximizes efficiency and conservation efforts in the water sector, and calls for measures that reduce GHG emissions and maintain water supply reliability. The Project is consistent with the water focus area in the Scoping Plan Update in that this project would enhance water supply reliability and reduce water use through conservation efforts. The Project is not one that would be required to report emissions to CARB. Therefore, the emissions generated by the Project would not be expected to have a substantial impact on global climate change. The Project would be consistent with the measures outlined in both the San Mateo County General Plan and County of San Mateo Government Operations Climate Action Plan. In particular these plans encouraged limits to vehicle idling and reductions in off-road and on-road equipment fleets through use of newer more efficient and/or alternatively fueled equipment. The Project would be consistent with these goals by limiting idling times (BMP-11) (see Table 2 in Chapter 2). For the above-described reasons, the Project would not conflict with AB 32 and local plans. Therefore, this impact is considered **less than significant**.					
c. Result in the loss of forest land or conversion of forest land to non-forest use, such that it would release significant amounts of GHG emissions, or significantly reduce GHG sequestering?					**X**
The proposed Project does not involve removal of trees and will not affect surrounding forest land. Therefore, there would be no permanent change in the forest land and no net change in GHG sequestration capacity. **No impacts** are expected to occur as a result of the proposed Project.					
d. Expose new or existing structures and/or infrastructure (e.g. – leach fields) to accelerated coastal cliff/bluff erosion due to rising sea levels?					**X**
The proposed Project work is located in a valley between two ridges. This site is 1,700 meters from the coastline and at least 180 feet above sea level. Due to this particular area's distance from the coast line and its elevation, there would be **no impact** from rising sea levels.					
e. Expose people or structures to a significant risk of loss, injury or death involving sea level rise?					**X**
For the reasons discussed in response to question 3.7d, **no impact** related to risk of loss, injury or death from sea level rise would occur.					
f. Place structures within an anticipated 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?					**X**
The proposed Project site is not within the 100-year flood hazard area (County of San Mateo 2012). The Project consists of the construction of a new water supply facilities and does not involve the construction of new housing units or structures. For this reason, **no impact** would occur.					
g. Place within an anticipated 100-year flood hazard area structures that would impede or redirect flood flows?					**X**

As described in response to question 3.7f, the proposed Project site is not within the 100-year flood hazard area. For this reason, **no impact** would occur.

3.8 HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
	Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (e.g. – pesticides, herbicides, other toxic substances, or radioactive material)?			X	
During construction, the proposed Project would require the use of certain hazardous materials such as fuels and oils when operating construction equipment. During routine transport and use of equipment, small amounts of fuels and oils could be released. Implementation of BMP-2 (Hazardous Materials), BMP-3 (Waste Management), BMP-6 (Spill Prevention and Control), BMP-8 (10.8 Containment) and BMP-9 (10.12 Equipment Maintenance/Fueling) require employment of measures for the safe handling, storage, and disposal of chemicals used during the construction phase. A summary of these measures are listed in Table 2 (Chapter 2). With implementation of these BMPs, the impact to the public or environment through the routine transport and use of hazardous materials would be **less than significant**.				
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?			X	
As discussed above, project construction would require the use of certain hazardous materials such as fuels and oils. Accidental release of these materials into the environment could adversely affect soil, surface waters, or groundwater quality. Implementation of BMPs listed in response to question 3.8a, above, require employment of BMPs for the safe handling, storage, and disposal of chemicals used during the construction process. With implementation of these BMPs, the impact to the public or environment through the routine transport and use of hazardous materials would be **less than significant**.				
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
The proposed Project is not located within one-quarter mile of an existing or proposed school. The nearest school, Pescadero Elementary and Middle School, is located approximately one mile east of the Project site. The proposed Project is expected to have **no impact** on an existing or proposed school should hazardous materials be released.				
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X

The proposed Project is not located on a site included on a list of hazardous materials sites. The closest known site is the Pigeon Point lighthouse, approximately 4.5 miles south of the Project area (California Department of Toxic Substance Control 2015). The proposed Project is expected to have **no impact** on the public or the environment due to its location on a hazardous materials site pursuant to Government Code Section 65962.5.					
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, result in a safety hazard for people residing or working in the project area?				**X**
The Project site is not located within an airport land use plan or within two miles of a public airport or public use airport. The closest known airport is the Half Moon Bay Airport, approximately 19 miles northwest of the Project site. The proposed Project is expected to have **no impact** on people residing or working in the project area with respect to airport compatibility.					
f.	For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?				**X**
As described above in response to question 3.8e, the proposed Project is not located within the vicinity of an active private airstrip. The portion of the County-owned property within the Project vicinity was at one time used as a private airstrip but is no longer in use. The proposed Project is expected to have **no impact** on people residing or working in the project area with respect to airport compatibility.					
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				**X**
The proposed Project site is not mapped as a tsunami inundation area by the California Emergency Management Agency (2009) or the County's Tsunami Evacuation Planning map (County of San Mateo 2005). The County's "Operational Area" Emergency Operations Plan encompasses the entire county, including the Project area. Within the Project area, emergency response is provided by California Department of Forestry and Fire Protection (CAL FIRE) and the County Sheriff's Office. None of the Project elements would have an effect on the County's emergency operations plan. Therefore, the proposed Project is expected to have **no impact** on adopted emergency response plans or emergency evacuation plans.					
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?			**X**	
The proposed Project site is not located within a designated fire hazard zone (CAL FIRE 2007). The proposed Project does not involve habitable structures; thus any potential wildland fires would not expose people or structures to a significant risk or loss, injury or death. The proposed Project is					

expected to have a **less than significant** impact associated with wildland fire.				
i. Place housing within an existing 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				**X**
This topic is addressed in Section 3.7, *Climate Change.* For the reasons described in response to questions 3.7f and 3.7g, above, the Project would not have **no impact** on new housing within an existing 100-year flood hazard area.				
j. Place within an existing 100-year flood hazard area structures that would impede or redirect flood flows?				**X**
This topic is addressed in Section 3.7, *Climate Change.* As described in response to question 3.7g, above, the proposed Project would have **no impact** on existing 100-year flood hazard area structures that would impede or redirect flows.				
k. 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?			**X**	
As stated above, the proposed Project does not contain habitable structures and would not expose people or structures to a significant risk of loss, injury or death involving flooding. Additionally, the Project site is not located within a dam inundation zone (BeyondSearsvilleDam.org 2015). Therefore, the proposed Project is expected to have a **less than significant** impact on the risk of loss, injury or death due to flooding.				
l. Inundation by seiche, tsunami, or mudflow?			**X**	
The proposed Project is not located within the area mapped as a tsunami inundation area by the California Emergency Management Agency (2009) or the County of San Mateo (2005). Therefore, the proposed Project would have **no impact** on people or structures due to inundation by tsunami, seiche or mudflow.				

3.9 HYDROLOGY AND WATER QUALITY. Would the project:				
	Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements (consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash))?			X	

The proposed Project would involve activities that could temporarily adversely affect water quality, including through disturbance of existing contaminants in soil and potential accidental release of chemicals. Construction activities that would pose a water quality threat are discussed below.

Ground-Disturbing Activities

Excavation and drilling work conducted in the Project area during construction of the new water storage tank and drilling of the new well presents an opportunity for sediment erosion and transport to surface waters downstream of the work area. Project construction would occur during dry summer months when there is little risk for sediment erosion and transport. However, if precipitation occurs during the construction season or during the rainy season after construction is complete, sediment inputs to surface water could occur in pulses during and after storm events. During such events, higher levels of turbidity in the water column could result due to material eroded from the work area. Increased turbidity and secondary effects on water temperature and dissolved oxygen concentrations could impair beneficial uses related to fish or wildlife resources in the Project area. However, implementation of BMP-4 (Construction Entrances and Perimeter), BMP-7 (Sediment Control), and BMP-17 (Site Stabilization) as presented in Table 2 (Chapter 2), would adequately prevent against erosion and sediment transport during and after project construction.

During the well drilling process, a bentonite drilling fluid would be used to cool the drill bit, move cuttings out of the well hole, and temporarily stabilize the walls of the well shaft. A mud pit approximately 20-feet long x 10-feet wide x 5-feet deep would be excavated on the site or alternatively a portable steel tank would be used to contain the drilling fluids. Additionally, during the well development process, a temporary pump would be used to flush increasing volumes of potable water into and out of the well hole. All water generated during the well drilling and well development process would be directed away from the well site and allowed to dissipate over the vegetated slope to the north of the Project site where it would not cause erosion or have any impact on existing surface waters.

By implementing BMPs described in the *Project Description*, potential impacts on water quality due to ground-disturbing activities would be less than significant.

Accidental Release of Hazardous Materials

Project construction would involve use of some heavy machinery including an excavator, rotary drilling rig, concrete mixer, and hauling trucks. Fuel and lubricants such as oil and grease are used in excavation and transportation equipment and vehicles. During construction activities, equipment and worker vehicles would be stored and refueled at the Project staging area.

Nonetheless, potential impacts on water quality could result from accidental releases of fuels, lubricants, hydraulic fluids, or other chemicals associated with operating construction equipment. Implementation of BMP-2 (Hazardous Materials), BMP-3 (Waste Management), BMP-5 (Maintenance and Parking), BMP-6 (Spill Prevention and Control), BMP-8 (10.8 Containment) and BMP-9 (10.12 Equipment Maintenance/Fueling) would prevent any accidental releases from occurring and potential adverse effects on water quality during construction would be minimized to less than significant.

In summary, implementation of BMPs would minimize the potential for Project construction activities to significantly degrade water quality, or violate water quality standards or waste discharge requirements. Therefore, this impact would be **less than significant**.

b. Significantly deplete groundwater supplies or interfere significantly 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)?			X	

County Service Area No. 11 (CSA 11) is a public water system with a production well, standby well, water storage tank, and distribution system that provides water for domestic use and fire flow to approximately 100 services in the rural community of Pescadero. Prior to 1993, the community of Pescadero's water supply was from individual domestic wells, surface water impoundments and locally derived groundwater from wells installed in the alluvial aquifer of Pescadero and Butano Creeks. In the 1970's and 1980's, it was discovered that these sources contain relatively high concentrations of nitrate, bacteria, and other naturally occurring salts. This resulted in the development of a public water supply source (CSA 11). An alternative groundwater source was located, and two new wells were installed in 1993 (Well 1 and Well 2). Well 1 is the production well, and Well 2 is the standby well. The existing wells are situated on the top of a ridge and draw from a portion of the Pigeon Point formation aquifer that is located above Mean Sea Level (MSL). In 2001, the County assessed the long-term reliability of the CSA 11 water system. The assessment concluded that based on the current pumping rate, the existing wells would fail by 2017 (Todd Engineers 2002). The Todd report hypothesized that the existing wells cause a localized drop in aquifer water levels, in part due to the wells withdrawing groundwater above MSL. An update to the 2002 study was conducted in 2013 by HydroScience Engineers, Inc., which found the rate of decline in water surface elevation over the last 10 years to be approximately 0.6 feet per year, estimating well failure to occur between 2018 and 2020 (HydroScience Engineers, 2013).

Both the Todd report (2002) and the HydroScience update (2013) concluded that a new well drilled to a depth of 100 feet below MSL is needed to intercept a deeper portion of the Pigeon Point formation in order to provide a more sustainable water supply system. Well depths in the Pigeon Point formation extend to over 500 feet below MSL. The new well would be drilled at a lower elevation and is designed to extend the life of CSA 11's water supply for at least the next 50 years without increasing the amount of extracted groundwater. In addition, the portion of the Pigeon Point formation below MSL is potentially subject to recharge by local stream flow, in addition to direct rainfall, and thus is more sustainable as a source of supply (HydroScience 2013). Upon completion of the well installation, pumping tests would be conducted to determine appropriate

pumping rates and target efficiency.

Pescadero is designated as a Rural Service Center under the San Mateo County Local Coastal Program (LCP) Policy 1.11, which requires the infilling and use of existing rural service centers to (1) provide commercial facilities which support agriculture and recreation and (2) meet housing needs which are generated by local employment. The CSA 11 water system is the source of drinking water and fire protection for the Pescadero Rural Service Center and currently services approximately 100 customers. LCP Policies 2.33 through 2.39 require the development and funding of a water system to eliminate the potential health hazard in the community of Pescadero and to limit the capacity of the system to the water required to serve buildout of the LCP Pescadero Land Use Plan (current LCP buildout for Pescadero is 200 dwelling units). Furthermore, the LCP requires the County, as the managing entity of the water system, to base the release of water connection permits on the proven capability of the system as it is determined initially and reevaluated annually. The County is required to monitor water consumption by use and revise the estimated buildout capacity limits annually on the basis of this monitoring. CSA 11 water connections are limited to uses within the boundary of the Pescadero Rural Service Center and to the fire protection facility serving the Rural Service Center. Thus, conditions are in place which limit the amount of groundwater able to be extracted by CSA 11.

Because the purpose of the proposed Project is to access a deeper portion of the Pigeon Point formation without increasing the amount of groundwater extracted and because drilling the new well to a depth of 100 feet below MSL would prevent the current localized drawdown of the shallow portion of the aquifer, there would be no expected change in the volume of the groundwater aquifer and the groundwater table elevation within the Pigeon Point formation would be improved in the Project vicinity.

In addition, the County will initiate a water conservation program for customers in CSA 11 by providing residents with low-or no-cost water-saving devices, such as high efficiency toilets and faucets. The goal of the water conservation program is to achieve a 2 acre-foot per year (AFY) reduction in annual CSA 11 water demand. The water conservation program will reduce water supply demand and help support implementation of a sustainable water supply system.

Therefore the impact on groundwater supply within the Pigeon Point formation is expected to be **less than significant**.

c.	Significantly 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 that would result in significant erosion or siltation on- or off-site?			**X**	

The proposed Project was designed to avoid impacting an adjacent drainage swale or altering existing drainage patterns of the site. The new storage tank would be located immediately adjacent to the existing tank and would tie in to the existing site drainage system. Additionally, once construction is complete, the County's contractor would restore disturbed areas by implementing erosion controls such as hydroseeding with native grass. Such measures would minimize the potential for post-construction erosion. For these reasons, the impact related to alteration of the Project site's drainage pattern would be **less than significant**.

d.	Significantly alter the existing drainage pattern of the site or area, including through the alteration of the course of a			**X**	

	stream or river, or significantly increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?				
The proposed Project would result in the addition of a minimal amount (approximately 2,500 square-feet) of impervious surface due to the construction of a new water storage tank. Given that the Project site occurs within a rural area surrounded by extensive pervious surface, the Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. As such, this impact would be **less than significant**.					
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide significant additional sources of polluted runoff?			X	
The proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional source of polluted runoff. The Project involves construction of only 2,500 square-feet of additional impervious surface and is located in a rural area surrounded by open space. Therefore, this impact would be **less than significant**.					
f.	Significantly degrade surface or groundwater water quality?			X	
For the reasons described in response to question 3.9a, above, impacts on surface water quality would be less than significant. Similarly, as described in response to question 3.9b, the Project is designed to extend the life of CSA 11's water supply without increasing the amount of extracted groundwater within the Pigeon Point formation, which is currently used as the groundwater source for CSA 11. Therefore, this impact would be **less than significant**.					
g.	Result in increased impervious surfaces and associated increased runoff?			X	
As described in response to question 3.9d, above, the proposed Project would result in approximately 2,500 square-feet of additional impervious surface and the Project area is surrounded by open space. The Project is not expected to result in any significant increase in runoff. Therefore, this impact would be **less than significant**.					

3.10 LAND USE AND PLANNING. Would the project:				
	Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a. Physically divide an established community?				X

The proposed Project will improve water supply system reliability for the community of Pescadero (CSA 11). The Project would not disrupt any adjacent land uses; therefore there would be **no impact** associated with division of an established community.

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?				X

The San Mateo County General Plan has designated the Project area as open space/rural and zoned as Resource Management-Coastal Zone/Coastal Development (RM-CZ/CD). The CD District and lands within the Coastal Zone were established by the Coastal Act of 1976. Projects planned to occur within the CD District are required to obtain a Coastal Development Permit. Accordingly, the County will apply for a Coastal Development Permit for compliance with the Coastal Development Act (County of San Mateo 2012). The RM-CZ/CD District permits a range of uses that are subject to a use permit including agricultural uses and accessory structures, nurseries and greenhouses, quarries and waste disposal sites, and a variety of other uses.

The proposed new water storage tank will be located adjacent to the existing tank on approximately 0.03 acres of sensitive wetland habitat, as defined by Policy 7.14 of the County's Local Coastal Program (LCP) (County of San Mateo 2013). The pre-existing freshwater wetland habitat present at the new water tank site is composed of approximately 1,500 square feet comprised of approximately 50% native facultative wetland (FACW) and obligate wetland (OBL) vegetation and 50% of ruderal upland species. Native wetland species include spreading rush (*Juncus patens*), Pacific rush (*Juncus effuses* var. *pacificus*), and Harford's sedge (*Carex harfordii*). Non-native facultative (FAC) and FACW species include cut-leaf plantain (Plantago coronopus) and Italian ryegrass (*Festuca perennis*). An alternative storage tank site was evaluated to attempt to avoid impacts to wetlands; however, the preferred tank site was determined to be the best option due to liquefaction potential in the alternative site. Therefore, impact to wetland habitat is unavoidable.

Policy 7.5 of the LCP Policies allow for the restoration of damaged habitat to mitigate for unavoidable significant impacts to sensitive habitats. To mitigate for impacts to wetlands, the County proposes to convert nearby upland, ruderal habitat to wetland habitat by grading the site to create small depressions in which wetland plants, such as spreading rush (*Juncus patens*), will be installed. The proposed mitigation area would be approximately 0.1 acre in size and would be located adjacent to an existing pond. A Habitat Mitigation and Monitoring Plan (HMMP) will be developed prior to Project implementation.

Local Coastal Program Policy 2.33 requires the development and funding of a water system to eliminate the potential health hazard in the community of Pescadero, which is designated as a Rural Service Center under Policy 1.11. The CSA 11 water system is the source of drinking water and fire protection for the Pescadero Rural Service Center and currently services approximately 100 customers. For a more detailed discussion regarding LCP policies related to population growth and water supply, refer to Section 3.9b, above. Given that the main objective of the project is to provide a safe and sustainable water supply to the Pescadero Rural Service Center (CSA 11), the project would be consistent with the above-described policies. Thus, the project would not result in any conflicts with applicable land use plans, policies or regulations; there would be **no impact**. For discussion regarding the project's consistency with the County's Significant Tree Ordinance and Heritage Tree Ordinance, refer to Section 3.4, *Biological Resources,* above.				
c. Conflict with any applicable habitat conservation plan or natural communities conservation plan?				**X**
As discussed in Section 3.4, *Biological Resources*, the proposed Project is not under the jurisdiction of an adopted habitat conservation plan or natural communities conservation plan. Therefore, the project would not conflict with these plans.				
d. Result in the congregating of more than 50 people on a regular basis?				**X**
The proposed Project does not include development of structures or facilities that would allow people to congregate on a regular basis. There would be **no impact** associated with congregation of 50 or more people on a regular basis.				
e. Result in the introduction of activities not currently found within the community?				**X**
The proposed Project would not cause a change in the type of use or activities that currently occur within the Project area. **No impact** would occur.				
f. Serve to encourage offsite development of presently undeveloped areas or increase development intensity of already developed areas (examples include the introduction of new or expanded public utilities, new industry, commercial facilities or recreation activities)?			**X**	
The proposed Project does not involve construction of new homes or businesses in the area, new road extensions, or other infrastructure into undeveloped areas. The Project is designed to extend the life of CSA 11's water supply for at least the next 50 years and provide a reliable water supply in the event of an emergency without increasing the amount of extracted groundwater. For a discussion regarding local policies related to population growth and water supply, refer to Section 3.9b, above. Therefore, the impact on development would be **less than significant**.				
g. Create a significant new demand for housing?			**X**	
For the reasons described above in response to question 3.9b and 3.10f, the impact from the				

construction of new water facilities would be **less than significant**.

3.11 MINERAL RESOURCES. Would the project:					
		Potentially Significant Impacts	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
a.	Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State?				**X**
There is no known mineral resource that would be of value regionally or statewide within the project area (County of San Mateo 1986). Consequently, the proposed Project would have **no impact** with respect to mineral resources.					
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?				**X**
There is no known mineral resource that would be of value regionally or statewide within the project area (County of San Mateo 1986). Consequently, the proposed Project would have **no impact** with respect to mineral resources.					

3.12 NOISE. Would the project result in:					
		Potentially Significant Impacts	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
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?			**X**	

The San Mateo County General Plan (1986) contains the following policies and objectives pertinent to noise:

- Strive toward an environment for all residents of San Mateo County which is free from unnecessary, annoying, and injurious noise.
- Reduce noise impacts through noise/land use compatibility and noise mitigation.
- Promote protection of noise-sensitive land uses and noise reduction in quiet areas and noise impact areas.
- Give priority to reducing noise at the source rather than at the receiver.
- Noise reduction along the path and at the receiver.

The most current version of the General Plan does not quantify noise levels for land-use types.

The San Mateo County Municipal Code for Noise Control is more specific than the General Plan. It limits noise levels to 55 dBA between the hours of 7:00 a.m. and 6:00 p.m. However, construction activities are exempt if the activities do not take place between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, 5:00 p.m. and 9:00 a.m. on Saturdays, or at any time on Sundays, Thanksgiving and Christmas.

The proposed Project would be consistent with the General Plan and the San Mateo County Municipal Code for Noise Control during construction activities by restricting hours of operation to those specified in the noise ordinance. Therefore, the impact would be **less than significant**.

b.	Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?			**X**	

There are no buildings or noise sensitive receptors located closer than 600 meters (1,968 feet) from the construction site, which lies in a small valley between two existing ridges. Therefore, the impact of ground-borne vibration or ground-borne noise vibration would be **less than significant**.

c.	A significant permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				**X**

There will be no permanent increase in ambient noise levels in the project vicinity since the proposed Project would not result in new permanent noise sources. Therefore, **no impact** would occur.

d.	A significant temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
There are no noise sensitive receptors located closer than 600 meters (1,968 feet) from the construction site, which lies in a small valley between two existing ridges. The transport of material by hauling trucks along Pescadero Creek Road would be temporary and episodic, affecting only a few nearby receptors for a limited period of time. For these reasons, and because such work would not violate the County's noise standards, the temporary increases in ambient noise levels would be **less than significant**.					
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, expose people residing or working in the project area to excessive noise levels?				X
The Project site is not in the vicinity of a public airport. The Half Moon Bay Airport, the closest airport to the Project site, is located approximately 19 miles north of the Project site. Therefore, **no impact** would occur.					
f.	For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels?				X
As previously described, the Project site is not in the vicinity of a private airstrip. Therefore, **no impact** would occur.					

3.13 POPULATION AND HOUSING. Would the project:				
	Potentially Significant Impacts	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
a. Induce significant population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			**X**	
As stated previously, the proposed Project does not involve construction of new homes or businesses in the area, new road extensions, or other infrastructure into undeveloped areas. The Project is designed to extend the life of CSA 11's water supply for at least the next 50 years and provide a reliable water supply in the event of an emergency without increasing the amount of extracted groundwater. For a discussion regarding local policies related to population growth and water supply, refer to Section 3.9b, above. Approximately 10 construction workers would be temporarily employed at the Project site throughout an eight-week duration. These jobs would likely be filled by the local work force. No new long-term employment opportunities or substantial population growth would result from construction activities. For these reasons, the Project is not likely to induce population growth and the impact would be **less than significant**.				
b. Displace existing housing (including low- or moderate-income housing), in an area that is substantially deficient in housing, necessitating the construction of replacement housing elsewhere?				**X**
As described above, the Project would not displace existing housing. **No impact** associated with displacement of housing necessitating the construction of replacement housing would occur.				

3.14 PUBLIC SERVICES. Would the project result in significant adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

		Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a.	Fire protection?			X	
b.	Police protection?			X	
c.	Schools?				X
d.	Parks?				X
e.	Other public facilities or utilities (e.g. – hospitals, or electrical/natural gas supply systems)?				X

CAL FIRE provides fire protection services to the community of Pescadero. The station is located approximately 300 feet west of the intersection of Pescadero Creek Road and Bean Hollow Road.

The Project area is also served by the San Mateo County Sheriff's Office. The nearest San Mateo County Sheriff's Office is the Half Moon Bay Substation at 537 Kelly Avenue, approximately 18 miles north of the Project site.

The Project site is located within the jurisdiction of the La Honda-Pescadero Unified School District. For discussion regarding nearby recreational facilities and parks, refer to Section 3.15, *Recreation*, below.

As described in Section 3.13, *Population and Housing*, above, the proposed Project would not result in direct or substantial indirect population growth. Since construction activities would be temporary and involve no more than 10 workers, project construction is not expected to significantly affect CAL FIRE or the County Sheriff's ability to maintain acceptable service ratios, response times, or performance objectives. Therefore, the Project would have a **less than significant** effect on demand related to fire and police services.

Further, the Project would not induce growth that requires additional or altered schools, parks or other public facilities to maintain service rations or performance objectives due to such demands. Therefore, **no impact** would occur on schools, parks, or other facilities.

3.15 RECREATION. Would the project:					
		Potentially Significant Impacts	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
a.	Increase the use of existing neighborhood or regional parks or other recreational facilities such that significant physical deterioration of the facility would occur or be accelerated?				**X**
While the Project site is located near the southern end of the Pescadero Marsh Natural Preserve, there are no recreational uses in the Project vicinity. The Project would not induce population growth that would result in an increase in use of nearby parks such as the Pescadero Marsh Natural Preserve. Therefore, the Project would have **no impact** on nearby parks or recreational facilities.					
b.	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				**X**
The proposed Project does not include any recreational facilities nor would it result in an increase in use of nearby recreational facilities such that construction or expansion of any recreational facilities would be necessary. Therefore, the project would have **no impact**.					

3.16 TRANSPORTATION/TRAFFIC. Would the project:				
	Potentially Significant Impacts	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
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?			**X**	

The Project site is located 1.0 mile east of Highway 1 and can be accessed from Bean Hollow Road approximately 350-feet south of the Pescadero Creek Road intersection. From the Project site, excavated material would be off-hauled to the Corinda Los Trancos Landfill (formerly referred to as Ox Mountain Sanitary Landfill) near Half Moon Bay or other appropriate upland disposal site. Pescadero Creek Road has a designated bike lane but no pedestrian sidewalks or pathways. There are no public transit lines in the Project vicinity. Based on data from San Mateo County Public Works Department from 2005, the annual average daily traffic (AADT) along Pescadero Creek Road between Bean Hollow Road and Stage Road is 2,800 (County of San Mateo 2015). Traffic along Highway 1 at Pescadero Creek Road has an AADT of 6,400 (Caltrans 2013).

Project construction would temporarily increase traffic volumes on Highway 1, Pescadero Creek Road, and Bean Hollow Road. Traffic would primarily increase from construction worker trips and the hauling of excavated material to the disposal site. The expected increase in traffic would take place between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. on Saturday for approximately eight weeks. The estimated increase in trips along these roads would be approximately 70 round trips per day, based upon an estimated 10 construction workers and 60 daily material hauling truck roundtrips over 5 days. This increase in daily traffic during project construction represents a 2.5 percent change over AADT. Aside from the above-described truck trips, no additional truck trips would be required.

Based on these estimates, the proposed Project would not result in a substantial increase in traffic during construction, and would not cause an exceedance of any level of service standard. However, local residents and business owners would likely notice an increase in localized traffic during the eight-week construction phase.

Following BMP-14, warning signs will be installed along Pescadero Creek Road and Bean Hollow Road to avoid potential vehicle, bicycle, or pedestrian traffic safety hazards. Flaggers will be utilized if necessary. Based on the minimal amount of traffic added to the roads and with implementation of BMP-14, potential conflicts with public transit, bicycle, or pedestrian facilities that could decrease the performance or safety of such facilities would be **less than significant**.

b. Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other			**X**	

	standards established by the County congestion management agency for designated roads or highways?				
Based on the estimates described in response to question 3.16a, above, with implementation of BMP-14, the proposed Project would not result in a substantial increase in traffic during construction activities and would not cause an exceedance of any level of service standard. Refer to the response to question 3.16e, below for discussion regarding effects on emergency access. Local residents and business owners would likely notice an increase in neighborhood traffic during the eight-week construction period. However, this increase would be temporary and short in duration; after construction is complete, traffic volumes would return to pre-construction levels. The Project would not be expected to substantially disrupt automobile traffic, local or regional mass transit, or non-motorized travel and relevant components of the circulation system. The proposed Project would, therefore, be consistent with the City/County Association of Government's (C/CAG's) Congestion Management Program (2013). For these reasons, the proposed Project would have a **less than significant** impact with respect to conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, or congestion management program.					
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in significant safety risks?				**X**
Project construction activities would not cause a change in area population, such that air traffic levels would change, or otherwise create safety risks that would require a change in air traffic patterns. As such, the project would have **no impact** on air traffic patterns.					
d.	Significantly increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				**X**
The Project consists of the construction of a new municipal water well and storage tank, located in a rural area away from any public roads or development. Therefore there is **no impact** associated with an increase in hazards or incompatible uses.					
e.	Result in inadequate emergency access?			**X**	
The Project site is located 0.25 mile southwest of CAL FIRE Pescadero Station 59. This particular station is located 300 feet west of the intersection of Pescadero Creek Road and Bean Hollow Road and serves the Pescadero community to the east of the Project site. During project construction, construction and worker vehicles would access Pescadero Creek Road from Bean Hollow Road and would travel pass Station 59, which may constrain emergency vehicles attempting to access the community of Pescadero. Implementation of BMP-14 would ensure that there is no disruption to emergency access. Therefore, the impact would be **less than significant**.					
f.	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			**X**	
The proposed Project would not result in changes to public transit, bicycle, or pedestrian facilities.					

However, there may be temporary decreases in performance and safety of public transit and bicycle facilities due to construction vehicle activity. There may be minor delays along Pescadero Creek Road and Bean Hollow Road due to entering and exiting of construction equipment. With implementation of BMP-14, there would be no conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities that would decrease the performance or safety of such facilities. Therefore this impact would be **less than significant**.					
g.	Cause noticeable increase in pedestrian traffic or a change in pedestrian patterns?				**X**
The proposed Project is not expected to generate new or affect existing pedestrian traffic once construction activities are complete. There are no designated pedestrian features along the roadways associated with the Project. As a result, the proposed Project would have **no impact** with respect to changes in pedestrian traffic.					
h.	Result in inadequate parking capacity?				**X**
The proposed Project would create a temporary parking demand for construction workers and construction vehicles at the Project site. The construction staging area on existing County property would adequately accommodate construction workers' parking demand and would not affect parking capacity in the Project area. For these reasons, the Project would have **no impact** with respect to adequate parking capacity.					

3.17 UTILITIES AND SERVICE SYSTEMS. Would the project:					
		Potentially Significant Impacts	**Significant Unless Mitigated**	**Less Than Significant Impact**	**No Impact**
a.	Exceed wastewater treatment require-ments of the applicable Regional Water Quality Control Board?			**X**	
As stated previously, the proposed Project does not involve construction of new homes or businesses in the area, new road extensions, or other infrastructure into undeveloped areas. The Project is designed to extend the life of CSA 11's water supply for at least the next 50 years and provide a reliable water supply in the event of an emergency without increasing the amount of extracted groundwater. For a discussion regarding local policies related to population growth and water supply, refer to Section 3.9b, above. As such, the Project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board and the impact would be **less than significant**.					
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 effects?			**X**	
For the reasons described above in response to question 3.9b and 3.17a, the impact from the construction of new water facilities would be **less than significant**.					
c.	Require or result in the construction of				**X**

	new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
The proposed Project would not require or result in construction of new stormwater drainage facilities or require expansion of such facilities. **No impact** would occur.					
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
As described in response to question 3.9b, the Project is designed to extend the life of CSA 11's water supply without increasing the amount of extracted groundwater within the Pigeon Point formation, which is currently used as the groundwater source for CSA 11. Therefore, with the exception of limited water supplies required during Project construction, the proposed Project would have **no impact** on existing water supply entitlements.					
e.	Result in a determination by the waste-water treatment provider which 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?				X
As previously described, the proposed Project would not generate any wastewater demands and would therefore have **no impact** on local wastewater treatment capacity.					
f.	Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
The proposed Project involves excavation of approximately 300 cubic yards of material due to the excavation of the storage tank foundation and drilling of the new well. This material would be disposed of off-site at the Corinda Los Trancos Landfill (formerly referred to as Ox Mountain Sanitary Landfill). As of May 2011, this facility had a remaining capacity of approximately 27 million cubic yards (CalRecycle 2015). The project would comply with applicable local, state, and federal solid waste regulations. As such, the impact on landfill capacity would be **less than significant**.					
g.	Comply with Federal, State, and local statutes and regulations related to solid waste?			X	
For the reasons discussed above, the impact related to compliance with solid waste regulations would be **less than significant**.					
h.	Be sited, oriented, and/or designed to minimize energy consumption, including transportation energy; incorporate water conservation and solid waste reduction measures; and incorporate solar or other alternative energy sources?			X	

During construction, energy consumption would be limited to use of gasoline and diesel for transportation and equipment operations. Implementation of the BMP-11 (Dust Control Measures) would limit the extent of vehicle and equipment idling, which would ensure that energy is not used in an inefficient manner. In addition, the County will initiate a water conservation program for customers in CSA 11 by providing residents with low-or no-cost water-saving devices, such as high efficiency toilets and faucets. The goal of the water conservation program is to achieve a 2 acre-foot per year (AFY) reduction in annual CSA 11 water demand. The water conservation program will reduce water supply demand and help support implementation of a sustainable water supply system. Therefore, this impact would be **less than significant**.

i.	Generate any demands that will cause a public facility or utility to reach or exceed its capacity?			**X**	

The Project is designed to extend the life of CSA 11's water supply for at least the next 50 years and provide a reliable water supply in the event of an emergency without increasing the amount of extracted groundwater. For a discussion regarding local policies related to population growth and water supply, refer to Section 3.9b, above. The project would not significantly induce population growth or otherwise affect demands for public facilities or utilities. Therefore, the impact would be **less than significant**.

3.18 MANDATORY FINDINGS OF SIGNIFICANCE.				
	Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, significantly 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?		X		
As discussed throughout this Initial Study checklist, significant but mitigable impacts were identified for biological resources and cultural resources. With implementation of BMPs and mitigation measures identified in this IS/MND (see Mitigation Measures BIO-1 through BIO-5, CUL-1, and CUL-2), the proposed Project does not have the potential to substantially reduce the habitat of 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. With implementation of the aforementioned mitigation measures, this impact would be **less than significant**.				
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.)			X	
As defined by the State of California, cumulative impacts reflect "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probably future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines, Section 15355[b]). Planned projects in the general area include: ▪ The Butano Creek at Pescadero Creek Road Sediment Removal Project ▪ Sediment reduction projects in upper Butano Creek conducted by the San Mateo County Resource Conservation District The Butano Creek at Pescadero Creek Road Sediment Removal Project involves dredging of sediment from 100 linear feet of stream channel at the Pescadero Creek Road crossing of Butano Creek. Sediment removal activities are expected to be conducted during a two-week period on an				

annual basis through 2019.

The planned projects listed above would potentially occur in the next five years. However, the Butano Creek at Pescadero Creek Road Sediment Removal Project would be implemented by the County and the Resource Conservation District projects would be implemented in support of the County. The County has limited labor resources to implement capital and maintenance projects and does not have the capacity to implement multiple projects at the same time, in the same area. As such, construction activities in the project area and along Pescadero Creek Road would be staggered throughout the year, and over multiple years. Therefore, the proposed project would not contribute to any cumulative impacts due to overlapping construction activities. Based on the above discussion, no construction-related cumulative impacts are anticipated to occur, and this impact would be **less than significant**.

c.	Does the project have environmental effects which will cause significant adverse effects on human beings, either directly or indirectly?			**X**	

Based on the analysis provided in the above resource sections, with incorporation of BMPs (listed in Table 2) the proposed Project would result in less than significant effects for the following resource topics: air quality, geology and soils, hydrology and water quality, hazards and hazardous materials, and transportation/traffic. Mitigation measures pertaining to cultural resources and biological resources would reduce Project-related impacts to a less than significant level. As such, implementation of BMPs and mitigation measures would ensure that the effects on human beings would be **less than significant**.

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Chapter 4
ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would potentially be affected by this Project, as indicated by the checklist on the preceding pages.

☐ Aesthetics	☐ Agricultural and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities / Service Systems	☒ Mandatory Findings of Significance

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Chapter 5
DETERMINATION

The conclusions and recommendations contained herein are professional opinions derived in accordance with current standards of professional practice. They are based on a review of County Environmental Resource Maps, the other sources of information listed in the file, and the comments received, conversations with knowledgeable individuals; the preparer's personal knowledge of the area; and, where necessary, a visit to the site. For further information, see the environmental background information contained in the permanent file on this project.

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 MITIGATED 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.

_____ _____

Signature Date

Name:_____

County of San Mateo Planning and Building Department

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Chapter 6
LIST OF PREPARERS

County of San Mateo Department of Public Works

Mark Chow, P.E.	Principal Civil Engineer
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Chapter 7
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2.0 Project Description

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3.4 Biological Resources

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None.

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3.13 Population and Housing

None.

3.14 Public Services

None.

3.15 Recreation

None.

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3.18 Mandatory Findings of Significance

None.

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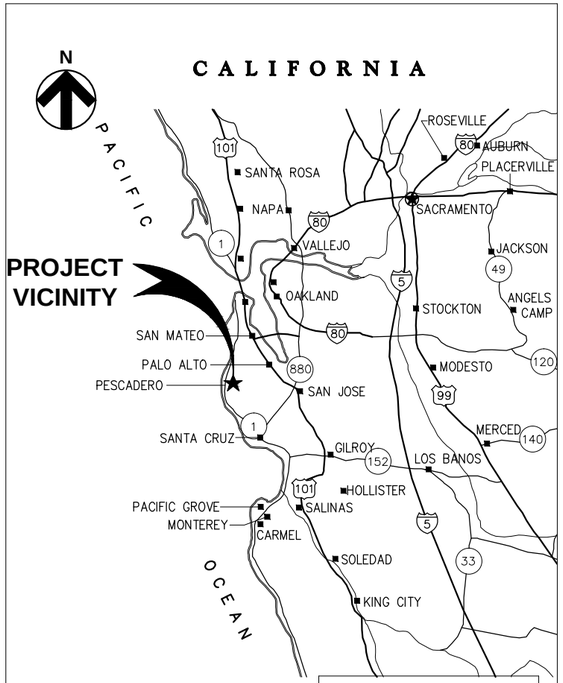
Appendix A. 100% Complete Designs for the Proposed Project

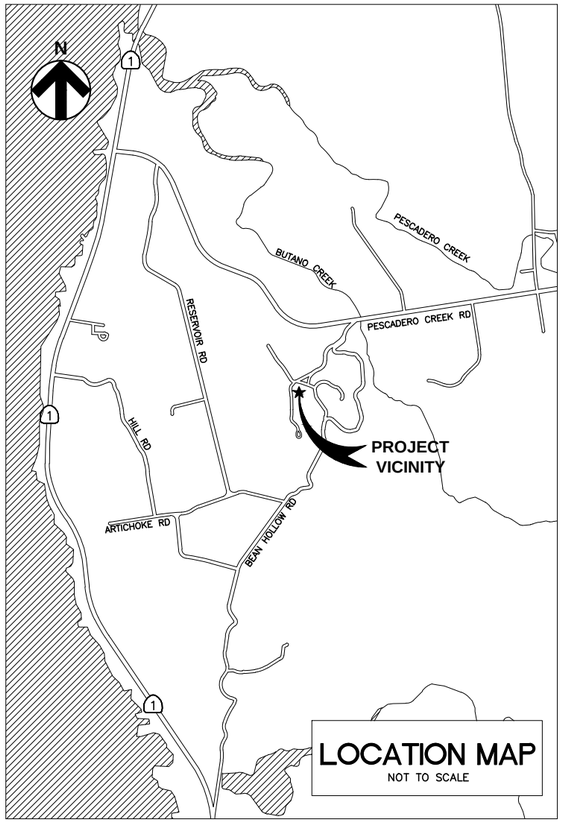
SAN MATEO COUNTY

COUNTY SERVICE AREA 11

WATER SUPPLY PROJECT
STORAGE TANK AND WELL



VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

GENERAL NOTES:

1. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR BEING FAMILIAR WITH THE SPECIFICATIONS, PROVISIONS AND PROCEDURES REQUIRED BY THE OWNER FOR THE WORK OUTLINED IN THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING A COPY OF THE APPROVED PLANS AND ANY ADDENDUM AT THE JOB SITE AT ALL TIMES. CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL, PAVEMENT CUTTING, TRENCHING, SHORING, BACKFILL AND PAVEMENT REPLACEMENT IN ACCORDANCE WITH THE LATEST EDITION OF THE SAN MATEO COUNTY STANDARD SPECIFICATIONS.
2. CONTRACTOR SHALL BE APPROPRIATELY LICENSED WITH THE STATE OF CALIFORNIA TO PERFORM THE WORK OUTLINED IN THESE PLANS.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL SECURE CONSTRUCTION PERMITS FROM THE COUNTY OF SAN MATEO AND OTHER AGENCIES AS NECESSARY.
4. CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF WORK.
5. ALL UNDERGROUND EXCAVATION SHALL BE CLEARED AT LEAST TWO (2) WORKING DAYS PRIOR TO START OF WORK BY CALLING (USA) UNDERGROUND SERVICE ALERT AT (800) 227–2600.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF ALL EXISTING UTILITIES IN THE FIELD. COSTS OF REPAIRING ANY DAMAGES OR INJURIES CAUSED BY THE CONTRACTOR SHALL BE BORNE BY THE CONTRACTOR. VARIOUS UNDERGROUND LINES WERE PLOTTED ON THE PLANS FROM THE INFORMATION OBTAINED FROM THE OWNER, THEREFORE, NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CORRECTNESS OF THEIR LOCATION.
7. EXISTING UTILITIES SHALL BE KEPT IN SERVICE AT ALL TIMES. UTILITIES THAT INTERFERE WITH THE WORK TO BE PERFORMED SHALL BE PROTECTED AS REQUIRED BY COUNTY OF SAN MATEO, PG&E, AT&T AND THE OWNER.
8. CONTRACTOR SHALL COORDINATE ALL NECESSARY UTILITY RELOCATIONS, IF REQUIRED, WITH THE APPROPRIATE UTILITY COMPANIES AND/OR THE OWNER.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING FACILITIES AND IMPROVEMENTS FROM DAMAGE RESULTING FROM CONTRACTOR'S WORK. ANY DAMAGE CAUSED BY CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
10. ALL DIMENSIONS SHOWN ON THE PLANS SHOW MEASUREMENTS IN A HORIZONTAL PLANE.
11. ALL MATERIAL SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
12. CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THE PROJECT; EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
13. SHOULD ANY CONTRACTOR OR SUBCONTRACTOR FIND ANY DEFICIENCIES, ERRORS, CONFLICTS OR OMISSIONS IN THESE PLANS AND SPECIFICATIONS OR SHOULD THERE BE ANY DOUBT AS TO THEIR MEANING OR INTENT, THE CONTRACTOR SHALL NOTIFY ENGINEER FOR A WRITTEN CLARIFICATION, ADDENDUM, ETC. SHOULD THE CONTRACTOR FAIL TO DO SO BEFORE SUBMITTING A PROPOSAL, THE CONTRACTOR CANNOT CLAIM ADDITIONAL COMPENSATION FOR WORK REQUIRED TO COMPLETE THE PROJECT.
14. WRITTEN DIMENSIONS ALWAYS TAKE PRECEDENCE OVER SCALED DIMENSIONS. IF THERE IS A CONFLICT, NOTIFY ENGINEER AND OBTAIN A CLARIFICATION. NO DEVIATION OR SUBSTITUTION SHALL BE ALLOWED WITHOUT OBTAINING WRITTEN APPROVAL FROM THE ENGINEER.
15. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. THE TOPOGRAPHIC INFORMATION AND EXISTING UTILITIES SHOWN ON THIS PLAN WERE TAKEN FROM TOPOGRAPHIC MAPS AND AS–BUILT PLANS PREPARED BY OTHERS. HYDROSCIENCE ENGINEERS ASSUMES NO LIABILITY, REAL OR ALLEGED, REGARDING THE ACCURACY OF THE TOPOGRAPHIC INFORMATION SHOWN.
16. THIS DRAWING SET DOES NOT REPRESENT A BOUNDARY SURVEY. BOUNDARY LINES SHOWN ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSES ONLY.
17. TWO SETS OF AS–BUILT/RECORD DRAWINGS SHALL BE SUBMITTED BY THE CONTRACTOR PRIOR TO ACCEPTANCE OF THE SYSTEM.
18. CONSTRUCTION BIDS SHALL BE BASED ON THE WORK REQUIRED BY THIS PLAN SET AND TECHNICAL SPECIFICATIONS, WHETHER OR NOT SPECIFICALLY ITEMIZED ON THE BID SHEET.

TO BE SUPPLEMENTED BY STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2006 AND ADOPTED BY SAN MATEO COUNTY, NOVEMBER 14, 2006, BY RESOLUTION NO. 068389

EROSION AND SEDIMATION CONTROL NOTES:

1. THE CONTRACTOR SHALL PREPARE EROSION AND SEDIMENT CONTROL (ESC) PLANS AND STORM WATER POLLUTION PREVENTION PLANS (SWPPP) AND SUBMIT TO OWNER.
2. ALL MAJOR GRADING SHOWN HEREIN SHALL BE WINTERIZED PRIOR TO OCTOBER 1.
3. INSTALLATION OF ALL PERMANENT AND TEMPORARY SEDIMENT/DETENTION DEVICES SHALL BE INSTALLED PRIOR TO OCTOBER 1.
4. SILT FENCE AND/OR STRAW WATTLE/LOG SEDIMENT BARRIERS WILL BE INSTALLED PRIOR TO OCTOBER 1 AND WILL REMAIN OPERABLE DURING THE RAINY SEASON (OCTOBER 1 TO APRIL 1).
5. THE CONTRACTOR WILL REVIEW THE EROSION AND SEDIMENT CONTROL (ESC) PLAN PRIOR TO INITIATING WORK ON THE SITE. CHANGES TO THE ESC PLAN TO MEET FIELD CONDITIONS WILL BE MADE ONLY WITH THE APPROVAL OF/OR AT THE DIRECTION OF FIRM WHICH PREPARES THE ESC PLAN.
6. THE CONTRACTOR WILL INFORM ALL CONSTRUCTION SITE WORKERS ABOUT THE MAJOR PROVISIONS OF THE EROSION AND SEDIMENT CONTROL PLAN AND SEEK THEIR COOPERATION IN AVOIDING THE DISTURBANCE OF THE EROSION CONTROL MEASURES.
7. ALL GRADED OR DISTURBED AREAS SHALL BE SEEDED IMMEDIATELY AFTER GRADING IS COMPLETE.
8. THE SEED WILL BE APPLIED BY HAND OR HYDRAULICALLY AT THE RATES SPECIFIED BELOW:
   (BLANDO/BROOM 25%), (FESUE 5%), (CRIMSON CLOVER 10%),
   (ROSE CLOVER 15%), AND (ANNUAL RYE 45%).
9. AN EQUIVALENT SEED MIX MAY BE SUBSTITUTED BY THE OWNER DEPENDING ON THE SUCCESS OF PRIOR SEED MIXES AND THE NUTRIENT LEVELS IN THE SOIL.
10. FERTILIZER USED SHALL BE ONE OF THE FOLLOWING SPECIFICATIONS:
    16–20–0 AT 200–250 LBS/ACRE
    12–12–12 AT 400 LBS/ACRE
    15–15–15 AT 300 LBS/ACRE
    10–20–0 AT 300 LBS/ACRE
11. THE TYPE OF MULCH USED SHALL BE ONE OF THE FOLLOWING:
    STRAW MULCH AT 3000 LBS/ACRE
    WOOD FIBER MULCH AT 2000 LBS/ACRE (IF HYDROSEEDED)
12. AREA TO BE SEEDED SHALL BE SCARIFIED TO DEPTH OF 4 INCHES TO 8 INCHES AND DRESSED TO PROVIDE A REASONABLY SMOOTH FIRM SURFACE.
13. IF HYDROSEEDING METHOD IS USED A TACKIFIER SUCH AS M_BINDER OR SENTINEL (OR EQUAL) SHALL BE APPLIED AT A RATE OF 75 TO 100 LBS/ACRE.
14. IF HYDROSEEDING METHOD IS USED SEED SHALL NOT REMAIN IN THE SLURRY LONGER THAN 30 MINUTES. FERTILIZERS SHALL NOT REMAIN IN THE SLURRY LONGER THAN 2 HOURS. THE SLURRY SHALL BE APPLIED IN A UNIFORM MANNER AT A RATE THAT IS NON–EROSIVE AND MINIMIZES RUNOFF.
15. NORTH AMERICAN GREEN SC150 EROSION CONTROL BLANKETS OR APPROVED EQUAL SHALL BE INSTALLED OVER SEED ON ALL SLOPES STEEPER THAN 2:1.

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12–31–2015

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

SHEET INDEX:

BASIS OF BEARING:

THE MERIDIAN OF THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE III, AS DETERMINED BY FOUND MONUMENTS.

BENCH MARK LOCATION and ELEVATION (NGVD DATUM):

BENCHMARK: A1240 ELEVATION: 50.29 DATUM: NAVD88
22.1 MILES NORTHWEST ALONG STATE HIGHWAY 1 FROM THE POST OFFICE AT DAVENPORT, AT THE JUNCTION OF PESCADERO ROAD WEST, IN THE TOP AND 0.8 FOOT NORTH OF THE SOUTH END OF THE EAST CONCRETE HEAD WALL OF AN 18–INCH PIPE CULVERT UNDER THE ROAD, 47 1/2 FEET NORTH OF THE CENTER LINE OF THE HIGHWAY, 54 FEET EAST OF THE CENTER LINE OF THE ROAD, ABOUT LEVEL WITH THE HIGHWAY AND THE ROAD.

•TO ADJUST TO NGVD 29 ELEVATIONS SUBTRACT 2.64.

GRADING NOTES:

1. THE SITE SHALL BE VISUALLY INSPECTED BY THE CONTRACTOR TO DETERMINE THE EXTENT OF CLEARING, GRUBBING AND GRADING WORK TO BE DONE. GRADING ON THE SITE WILL BE LIMITED TO THE EXCAVATIONS AND/OR FILLS SHOWN ON THE PLAN.
2. GEOTECHNICAL ENGINEER SHALL BE NOTIFIED AT LEAST THREE (3) DAYS IN ADVANCE OF COMMENCING WORK, INCLUDING SITE STRIPPING AND GRADING OPERATIONS. THE GRADING WORK SHOWN ON THESE PLANS SHALL BE OBSERVED AND TESTED BY THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE.
3. CONTRACTOR SHALL CONDUCT ALL GRADING OPERATIONS IN SUCH A MANNER AS TO PRECLUDE WIND BLOWN DIRT AND DUST AND RELATED DAMAGE TO NEIGHBORING PROPERTIES. SUFFICIENT WATERING TO CONTROL DUST IS REQUIRED AT ALL TIMES. CONTRACTOR SHALL ASSUME LIABILITY FOR CLAIMS RELATED TO WIND BLOWN MATERIAL. IF THE DUST CONTROL IS INADEQUATE AS DETERMINED BY THE ENGINEER, CONSTRUCTION WORK SHALL BE TERMINATED UNTIL CORRECTIVE MEASURES ARE TAKEN.
4. CONTRACTOR SHALL CONFORM TO EXISTING PAVEMENT, SURROUNDING LANDSCAPE AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION IN PAVING, GRADING, ETC., AND AVOID ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS SLOPES, LOW SPOTS OR HAZARDOUS CONDITIONS.

APPROVED DATE:	
CURTIS LAM, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06–30–2017	

REGISTERED PROFESSIONAL ENGINEER
CURTIS W. LAM
No. C59049
EXP. 06-30-17
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

		DESIGNED BY: MKT	TITLE SHEET, MAPS, GENERAL NOTES
		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT
		DRAWN BY: MKT	
REVISION	DATE	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: OCT 2015
FILE NO.: 1/4907

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

G1
SHEET 1 OF 18

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STANDARD SYMBOLS

- GATE VALVE
- BALL VALVE
- CHECK VALVE
- PNEUMATIC OR HYDRAULIC OPERATED VALVE (FOR VALVE TYPE SEE SPECS)
- AIR VACUUM RELIEF VALVE
- AIR VENT
- QUICK CONNECTOR
- CAP OR PLUG
- BLIND FLANGE
- REDUCER OR INCREASER
- MECHANICAL COUPLING (DRESSER)
- PERMANENT BENCH MARK ON SURVEY MONUMENT
- B#1 SOIL BORING AND DESIGNATION
- UB UTILITY BOX

VALVE, PIPELINE, AND MISCELLANOUS SYMBOLS

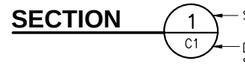
- UTILITY POLE
- PROPERTY LINE
- CENTER LINE
- NEW PIPING
- W EXISTING WATER PIPING
- OE EXISTING OVERHEAD ELECTRICAL
- FENCE
- NATURAL GROUND OR GRADE
- CONCRETE
- SAND
- P 100 EQUIPMENT DESIGNATION
- FM FLOW METER
- DOUBLE BALL COUPLING
- BOLLARD

SECTION AND DETAIL NUMBERING SYSTEM

(1) SECTION CUT ON DWG C1

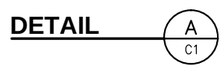
1 — SECTION NUMBER
C2 — DRAWING ON WHICH SECTION APPEARS

(2) ON DWG C2 THIS SECTION IS IDENTIFIED AS



1 — SECTION NUMBER
C1 — DRAWING FROM WHICH SECTION IS TAKEN

(3) DETAILS ARE CROSS-REFERENCED IN A SIMILAR MANNER, EXCEPT THAT DETAILS ARE IDENTIFIED BY LETTER RATHER THAN NUMBER.



NOTE:

1. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY. NOT ALL SYMBOLS AND ABBREVIATIONS ARE USED IN THESE CONTRACT DRAWINGS.

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER — JAMES C. PORTER — C 48056 — EXPIRES 12/31/15 — CIVIL — STATE OF CALIFORNIA

ABBREVIATIONS

A	
AB	AGGREGATE BASE
ABAN	ABANDONED UTILITY
AC	ASPHALT CONCRETE
AL	ALUMINUM
APPROX	APPROXIMATE
ARV	AIR RELEASE VALVE
B	
BOT	BOTTOM
BUR CBL	BURIED CABLE
BV	BALL VALVE/BUTTERFLY VALVE
C	
C	CONDUIT
CDF	CONTROL DENSITY FILL
CLR	CLEAR/CLEARANCE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONST	CONSTRUCT(ION)
CONT	CONTINUOUS
CORP	CORPORATION
CPLG	COUPLING
CV	CHECK VALVE
D	
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
E	
EA	EACH
EL OR ELEV	ELEVATION
ELEC	ELECTRICAL
ELL	ELBOW
ENC	ENCASED
ENGR'D	ENGINEERED
ENTRAIN'T	ENTRAINMENT
EQ	EQUAL
ESC	EROSION AND SEDIMENTATION CONTROL
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION

F	
FC	FLEXIBLE COUPLING
FCA	FLANGED COUPLING ADAPTER
FDN	FOUNDATION
FG	FINISHED GRADE
FI	FLOW INDICATOR
FLG	FLANGE
FS	FLOW SWITCH/FLOW SIGNAL
FTG	FOOTING
FTS	FLOAT SWITCH
G	
GALV	GALVANIZED
GB	GRADE BREAK
GPM	GALLONS PER MINUTE
GS	GALVANIZED STEEL
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
H	
HP	HORSEPOWER
HT	HEIGHT
I	
ID	IDENTIFICATION/INNER DIAMETER
IE	INVERT ELEVATION
INV	INVERT
J	
JT	JOINT
L	
LE	LEVEL ELEMENT
LF	LINEAR FEET
LSH	LEVEL SWITCH-HIGH
LSHH	LEVEL SWITCH-EMERGENCY HIGH
LSL	LEVEL SWITCH-LOW
LT	LEVEL TRANSDUCER
M	
MANU	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MIP	MALE IRON PIPE
MJ	MECHANICAL JOINT
MSS	MANUFACTURERS STANDARDIZATION SOCIETY

N	
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
O	
OC	ON CENTER
OD	OUTSIDE DIAMETER
P	
PCF	POUNDS PER CUBIC FOOT
PG	PRESSURE GAUGE
PI	PRESSURE INDICATOR
PIT	PRESSURE INDICATOR TRANSMITTER
PRESS	PRESSURE
PRV	PRESSURE RELIEF VALVE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PW	POTABLE WATER
R	
REQD	REQUIRED
REQ'T(S)	REQUIREMENT(S)
RED	REDUCER
RFCA	REINFORCED FLANGED COUPLING ADAPTER
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RW	RECYCLED WATER
S	
S	SLOPE (FEET/FOOT) OR SOUTH
SCH	SCHEDULE
SMC	SAN MATEO COUNTY
SPECS	SPECIFICATIONS
SQ	SQUARE
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SUC	SUCTION
SV	SOLENOID VALVE
SWD	SIDE WATER DEPTH
SWPPP	STORMWATER POLLUTION PREVENTION PLAN

T	
T&B	TOP AND BOTTOM
TB	TOP OF BERM
TC	TOP OF CONCRETE
TD	TRENCH DRAIN
TG	TOP OF GRATE
TK	TANK
TYP	TYPICAL
U	
UNO	UNLESS NOTED OTHERWISE
V	
V	VERTICAL OR VALVE
VAR	VARIES OR VARIABLE
VIC	VICTAULIC
W	
W	WATER (LINE) OR WEST
W/	WITH
WM	WATER MAIN
WSP	WELDED STEEL PIPE

PIPE IDENTIFICATION SYSTEM

NOTE: FOR SERVICE ABBREVIATIONS, SEE BELOW.

SERVICE ABBREVIATIONS

D	DRAIN
OF	OVERFLOW
W	WATER

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APPROVED DATE:	
CURTIS LAM, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06-30-2017	

REGISTERED PROFESSIONAL ENGINEER — CURTIS M. LAM — No. C59049 — EXP. 06-30-17 — CIVIL — STATE OF CALIFORNIA

COUNTY OF SAN MATEO — PUBLIC WORKS

		DESIGNED BY: MKT	STANDARD SYMBOLS AND ABBREVIATIONS	SCALE: AS SHOWN
		CHECKED BY: CML		DATE: OCT 2015
		DRAWN BY: MKT	CSA 11 WATER SUPPLY PROJECT	FILE NO.: 1/4907
REVISION	DATE	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063	

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

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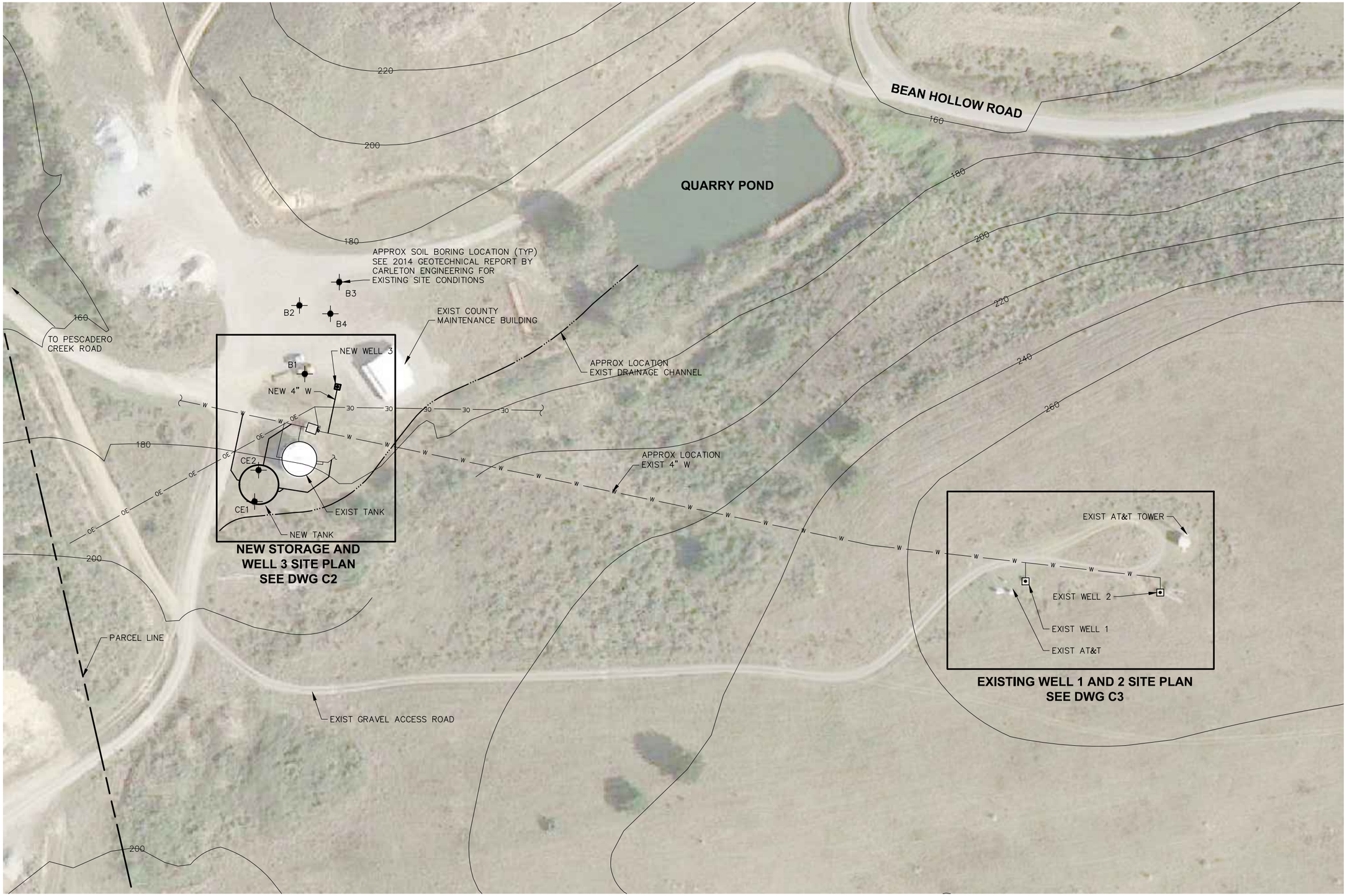
SHEET 2 OF 18



APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

N

50 0 50 100
1 INCH = 50 FT

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APPROVED DATE:	
CURTIS LAM, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06-30-2017	

REGISTERED PROFESSIONAL ENGINEER
CURTIS M. LAM
No. C59049
EXP. 06-30-17
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE

DESIGNED BY: MKT
CHECKED BY: CML
DRAWN BY: MKT

OVERALL SITE PLAN

CSA 11 WATER SUPPLY PROJECT

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: OCT 2015
FILE NO.: 1/4907

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
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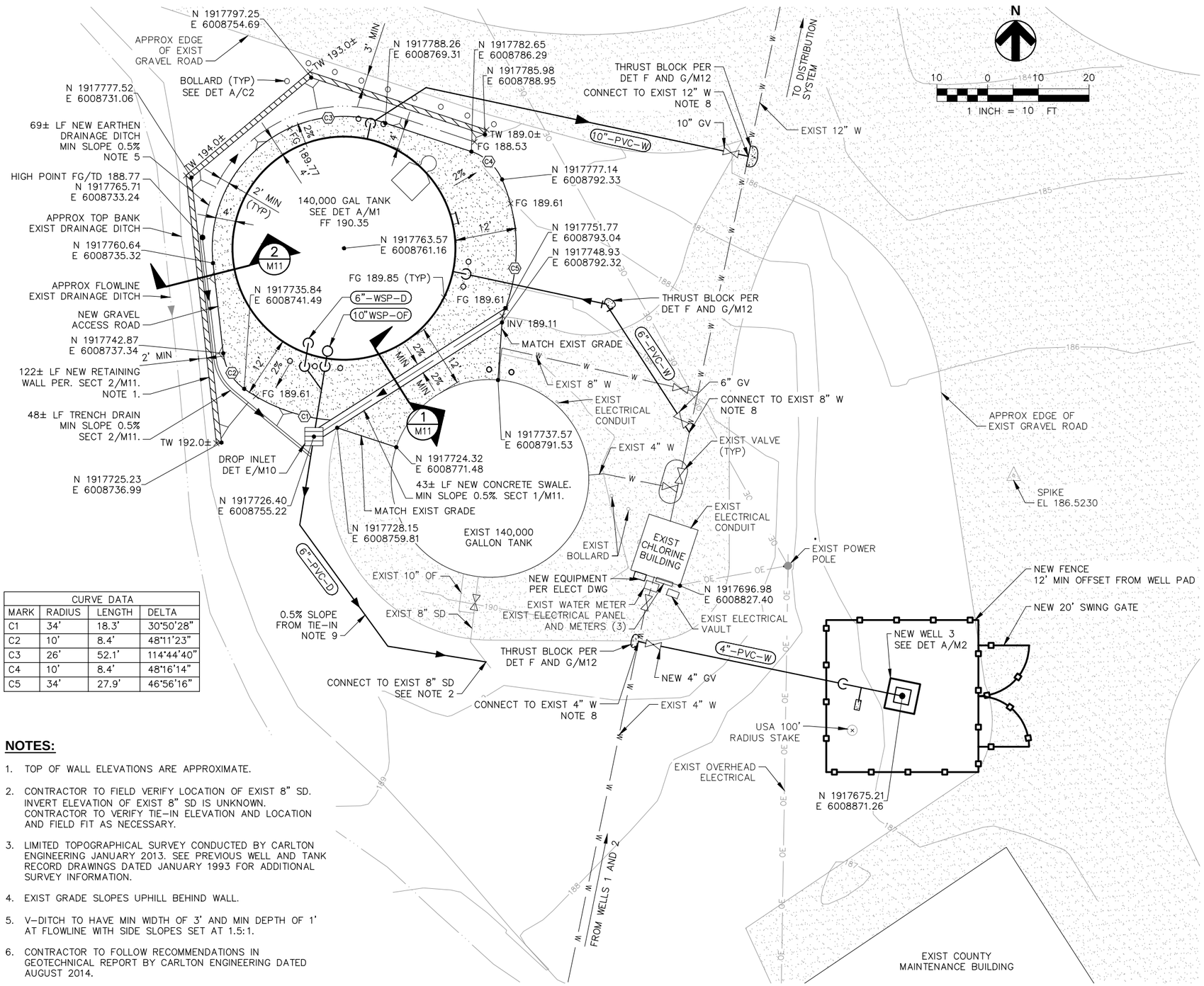
C1
SHEET 3 OF 18



CURVE DATA			
MARK	RADIUS	LENGTH	DELTA
C1	34'	18.3'	30°50'28"
C2	10'	8.4'	48°11'23"
C3	26'	52.1'	114°44'40"
C4	10'	8.4'	48°16'14"
C5	34'	27.9'	46°56'16"

NOTES:

1. TOP OF WALL ELEVATIONS ARE APPROXIMATE.
2. CONTRACTOR TO FIELD VERIFY LOCATION OF EXIST 8" SD. INVERT ELEVATION OF EXIST 8" SD IS UNKNOWN. CONTRACTOR TO VERIFY TIE-IN ELEVATION AND LOCATION AND FIELD FIT AS NECESSARY.
3. LIMITED TOPOGRAPHICAL SURVEY CONDUCTED BY CARLTON ENGINEERING JANUARY 2013. SEE PREVIOUS WELL AND TANK RECORD DRAWINGS DATED JANUARY 1993 FOR ADDITIONAL SURVEY INFORMATION.
4. EXIST GRADE SLOPES UPHILL BEHIND WALL.
5. V-DITCH TO HAVE MIN WIDTH OF 3' AND MIN DEPTH OF 1' AT FLOWLINE WITH SIDE SLOPES SET AT 1.5:1.
6. CONTRACTOR TO FOLLOW RECOMMENDATIONS IN GEOTECHNICAL REPORT BY CARLTON ENGINEERING DATED AUGUST 2014.
7. CONTRACTOR TO PROTECT EXIST DRAINAGE DITCH.
8. EXIST PIPE SIZE AND MATERIAL IS UNVERIFIED. CONTRACTOR TO VERIFY PIPE SIZES AND MATERIAL PRIOR TO FABRICATION OR ORDERING OF FITTINGS. CONNECT TO EXIST PIPE USING HOT TAP AND PER DET E/M12.
9. IF LESS THAN 30" COVER, INSTALL PIPE CAP PER DET C/M12.

NEW TANK AND WELL 3 SITE PLAN

SCALE: 1" = 10'

APPROVED:

DATE:

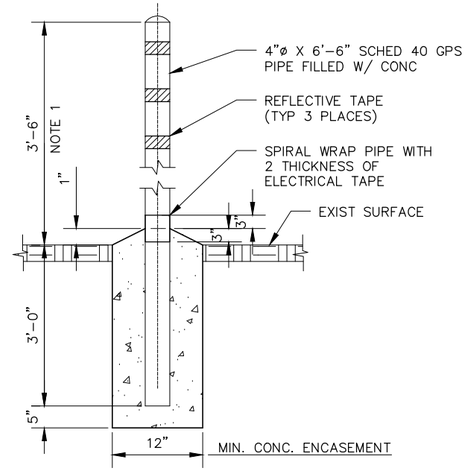
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

SURVEY NOTES:

1. LIMITED TOPOGRAPHIC SURVEY SHOWN. TOPOGRAPHIC SURVEY CONDUCTED BY CARLTON ENGINEERING, INC., 3883 PONDEROSA ROAD, SHINGLE SPRINGS, CA, 95682. CONDUCTED JANUARY 4, 2013.
2. BASIS OF BEARINGS:
   THE MERIDIAN OF THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE III, AS DETERMINED BY FOUND MONUMENTS.
3. UTILITY STATEMENT:
   THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND/OR EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
4. BENCH MARK:
   BENCHMARK: A1240 ELEVATION: 50.29 DATUM: NAVD 88
   22.1 MILES NORTHWEST ALONG STATE HIGHWAY 1 FROM THE POST OFFICE AT DAVENPORT, AT THE JUNCTION OF PESCADERO ROAD WEST, IN THE TOP AND 0.8 FOOT NORTH OF THE SOUTH END OF THE EAST CONCRETE HEAD WALL OF AN 18-INCH PIPE CULVERT UNDER THE ROAD, 47 1/2 FEET NORTH OF THE CENTER LINE OF THE HIGHWAY, 54 FEET EAST OF THE CENTER LINE OF THE ROAD, ABOUT LEVEL WITH THE HIGHWAY AND THE ROAD.

   * TO ADJUST TO NGVD 29 ELEVATIONS SUBTRACT 2.64.



NOTES:

1. BOLLARD HEIGHT SHALL BE 6' ABOVE GRADE FOR BOLLARDS NORTH OF THE CMU WALL. REMAINING BOLLARDS SHALL BE 3'-6" ABOVE GRADE.

BOLLARD DETAIL

NOT TO SCALE

A

APPROVED DATE:

CURTIS LAM, P.E., ENGINEERING CONSULTANT
HYDROSCIENCE ENGINEERS, INC.
R.C.E. # C59049 / EXPIRES 06-30-2017

REGISTERED PROFESSIONAL ENGINEER CURTIS M. LAM No. C59049 EXP. 06-30-17 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE	DESIGNED BY: MKT	NEW STORAGE TANK AND WELL 3 SITE PLAN	SCALE: AS SHOWN
		CHECKED BY: CML		DATE: OCT 2015
		DRAWN BY: MKT	CSA 11 WATER SUPPLY PROJECT	FILE NO.: 1/4907
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063	

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C2
SHEET 4 OF 18

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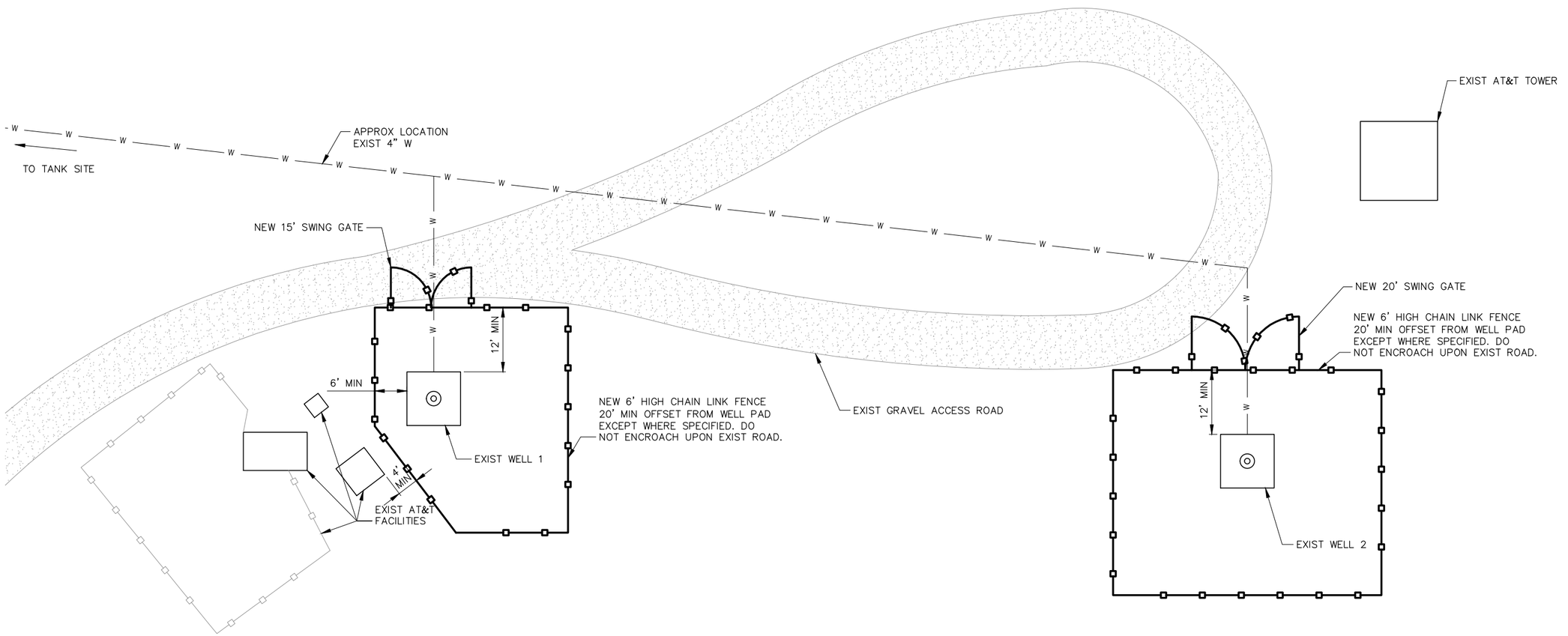
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

N

10 0 10 20

1 INCH = 10 FT



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APPROVED DATE:	
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HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06-30-2017	

REGISTERED PROFESSIONAL ENGINEER
CURTIS M. LAM
No. C59049
EXP. 06-30-17
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

		DESIGNED BY: MKT	EXISTING WELL 1 AND 2 SITE PLAN	SCALE: AS SHOWN
		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT	DATE: OCT 2015
		DRAWN BY: MKT		FILE NO.: 1/4907
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063	
REVISION	DATE			

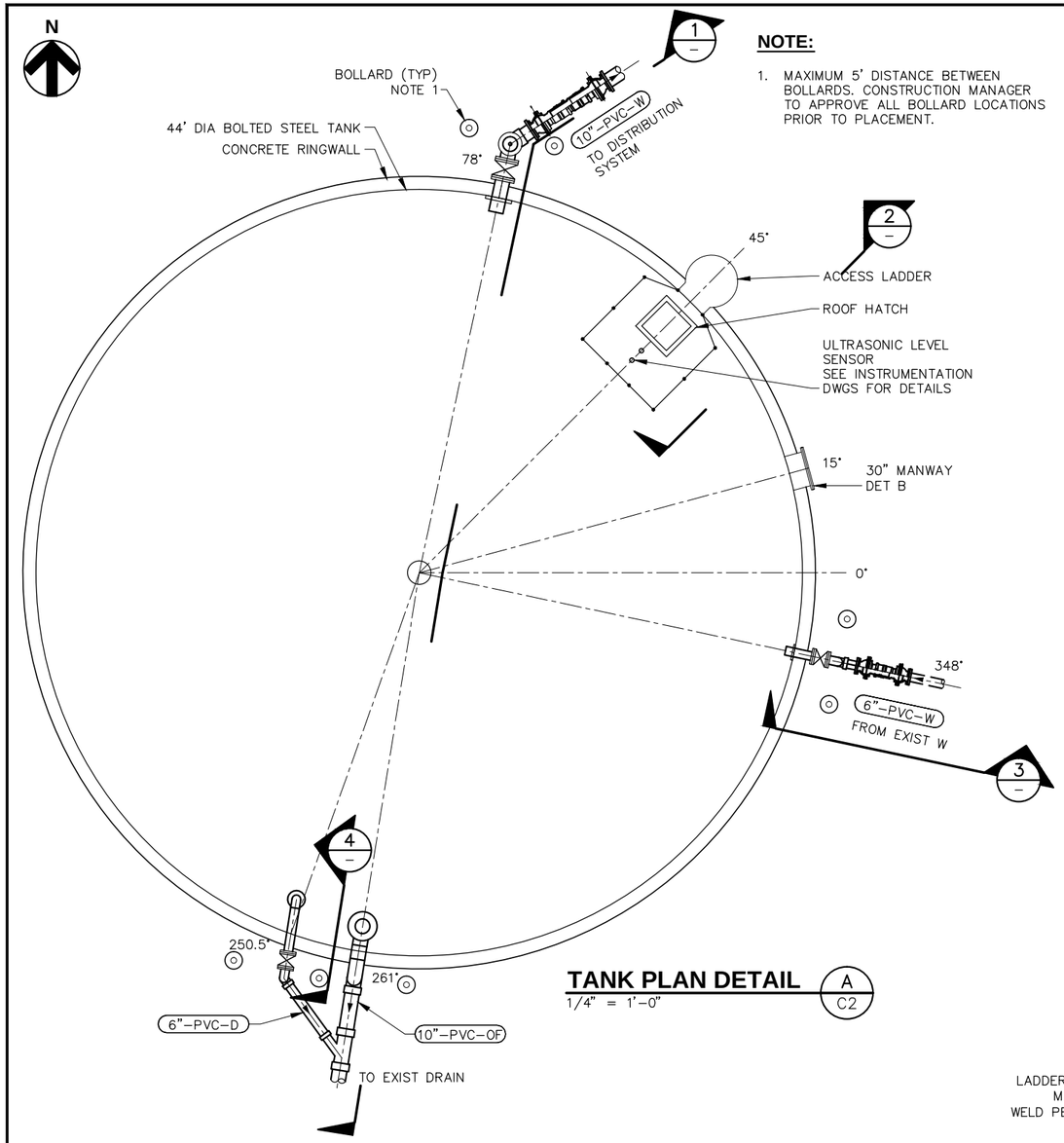
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C3
SHEET 5 OF 18

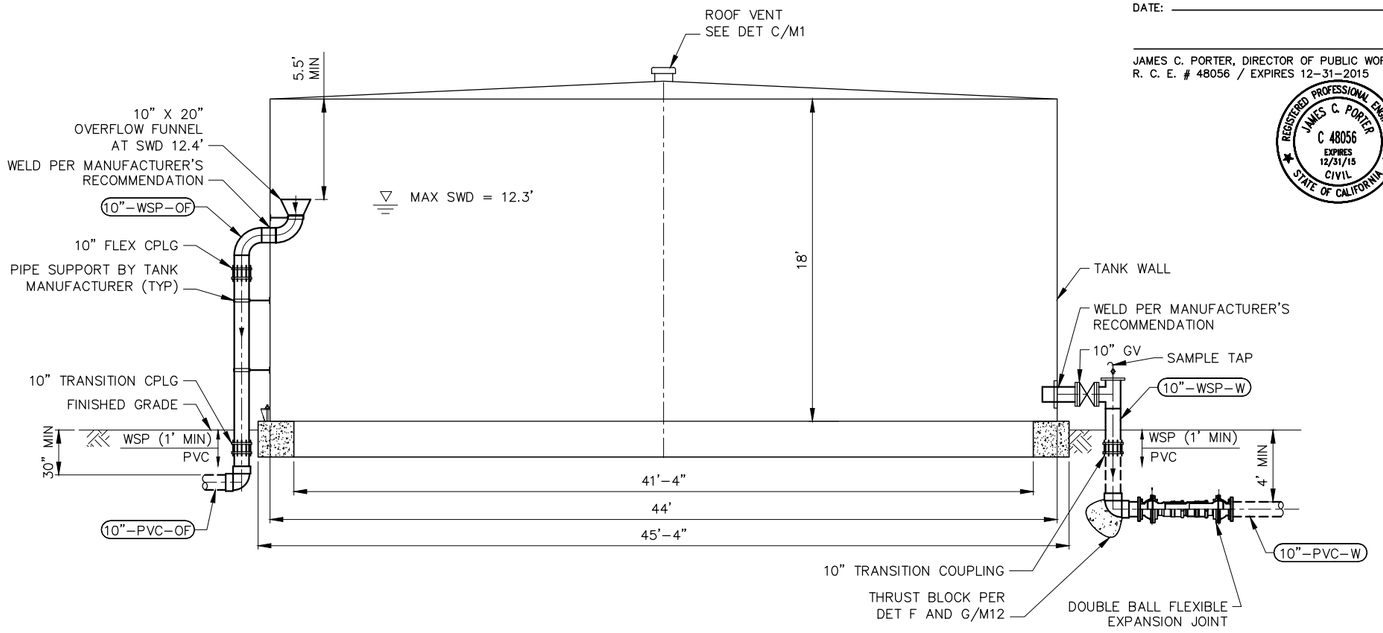
N

NOTE:

1. MAXIMUM 5' DISTANCE BETWEEN BOLLARDS. CONSTRUCTION MANAGER TO APPROVE ALL BOLLARD LOCATIONS PRIOR TO PLACEMENT.



TANK PLAN DETAIL (A / C2)
1/4" = 1'-0"



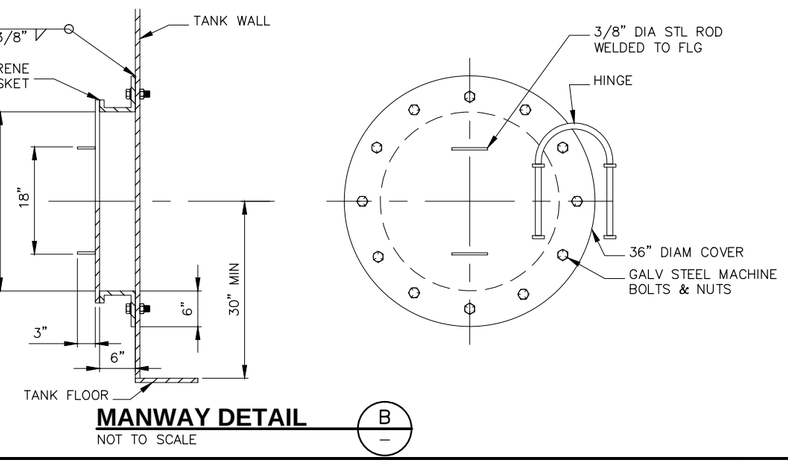
INLET AND OVERFLOW SECTION (1 / –)
1/4" = 1'-0"

APPROVED:

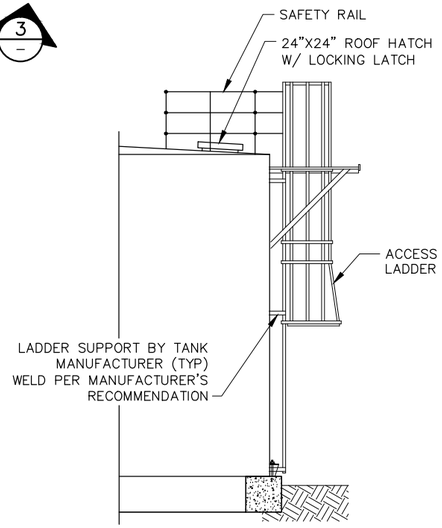
DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

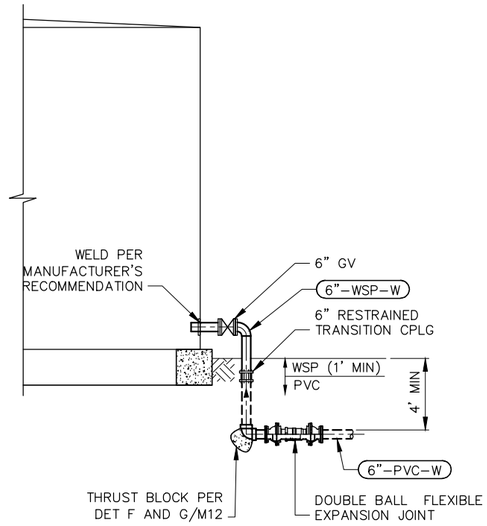
REGISTERED PROFESSIONAL ENGINEER — JAMES C. PORTER — C 48056 — EXPIRES 12/31/15 — CIVIL — STATE OF CALIFORNIA



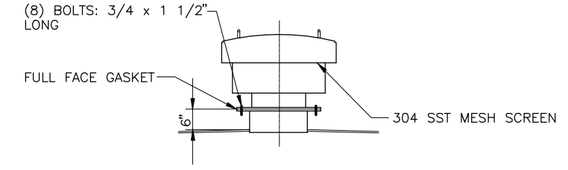
MANWAY DETAIL (B / –)
NOT TO SCALE



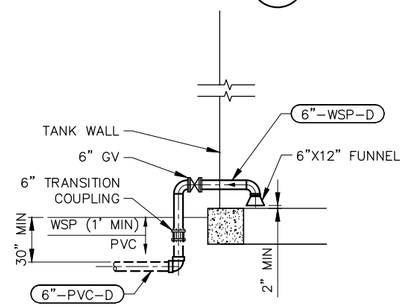
ACCESS HATCH SECTION (2 / –)
NOT TO SCALE



TANK OUTLET SECTION (3 / –)
NOT TO SCALE



ROOF VENT DETAIL (C / –)
NOT TO SCALE



TANK DRAIN SECTION (4 / –)
NOT TO SCALE

APPROVED DATE:	
CURTIS LAM, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06-30-2017	

REGISTERED PROFESSIONAL ENGINEER — CURTIS M. LAM — No. C59049 — EXP. 06-30-17 — CIVIL — STATE OF CALIFORNIA

COUNTY OF SAN MATEO — PUBLIC WORKS

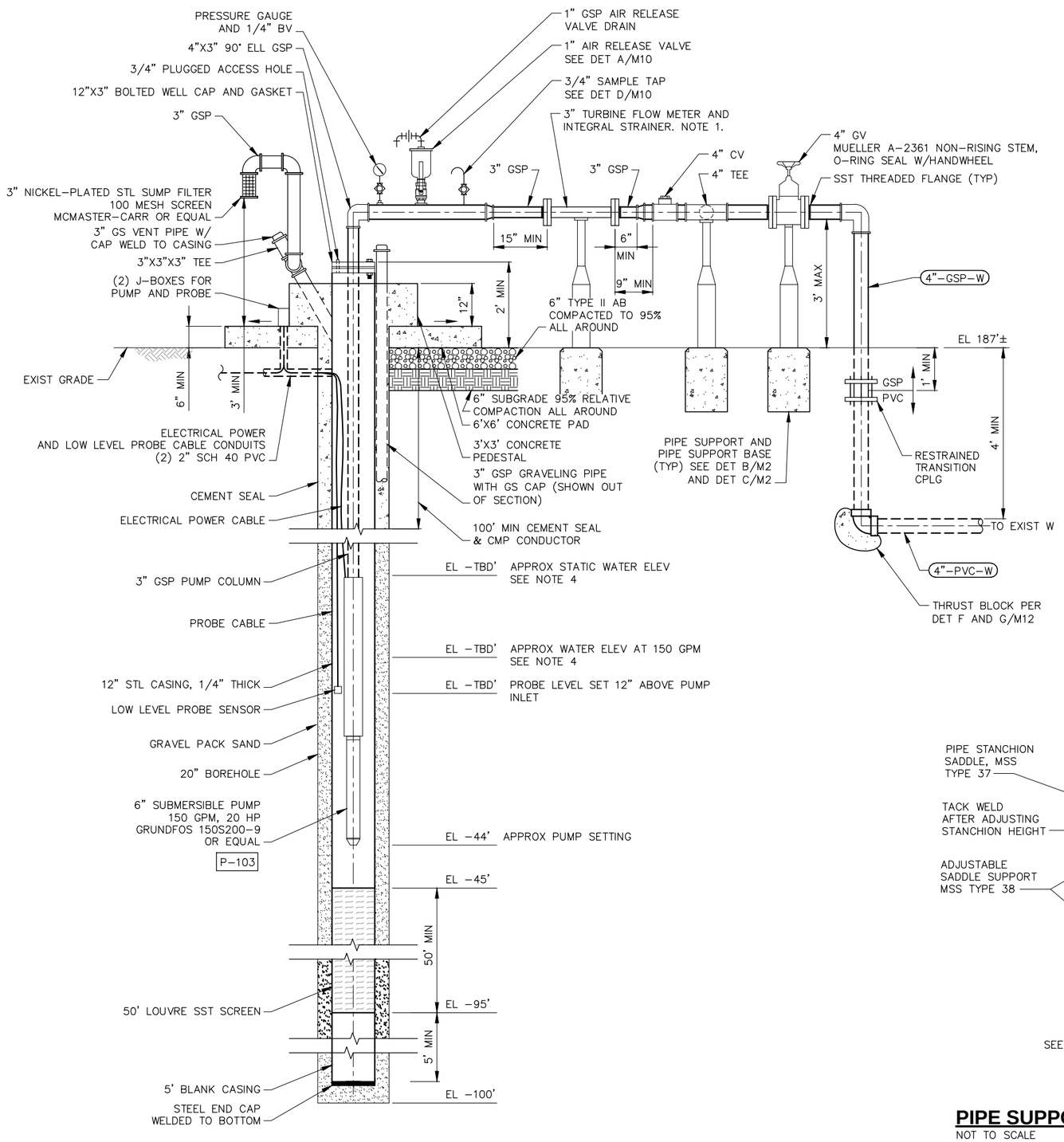
		DESIGNED BY: MKT	STORAGE TANK PLAN AND SECTION
		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT
		DRAWN BY: MKT	
REVISION	DATE	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: OCT 2015
FILE NO.: 1/4907

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

M1
SHEET 6 OF 18

S:\Common\Projects\245-CSA 11 Water\03-CAD\04-Mechanical\M1 Tank.dwg Last saved by: mfinn Plot Date: 10/27/15 8:24 AM



WELL SECTION

SCALE: 3/4" = 1'-0"

1

NOTES:

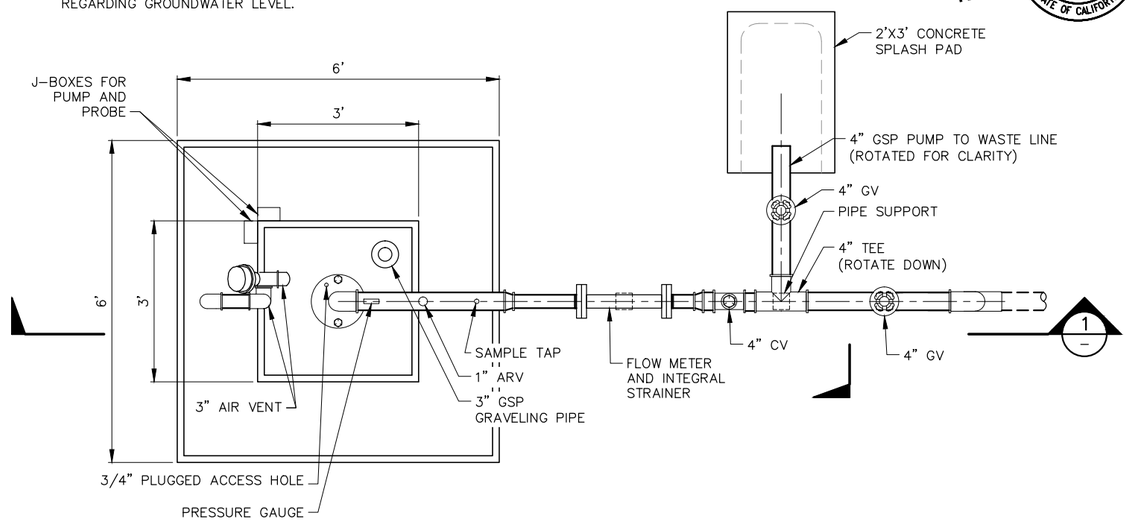
1. FLOW METER SHALL BE INSTALLED WITH THE MINIMUM UPSTREAM AND DOWNSTREAM STRAIGHT RUN OF PIPE AS SHOWN, OR PER MANUFACTURER REQUIREMENTS, WHICHEVER IS GREATER.
2. ALL BURIED PIPING SHALL BE C900 PVC AND SHALL HAVE A MINIMUM OF 4' COVER.
3. POTABLE WATER PIPING AND APPURTENANCES SHALL CONFORM TO NSF 60/61 STANDARDS.
4. CONTRACTOR TO CONDUCT PUMPING TESTS TO DETERMINE STATIC WATER ELEVATION AND PUMPING WATER ELEVATION AT 150 GPM. SEE GEOTECHNICAL REPORT (2014) FOR PRELIMINARY INFORMATION REGARDING GROUNDWATER LEVEL.

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

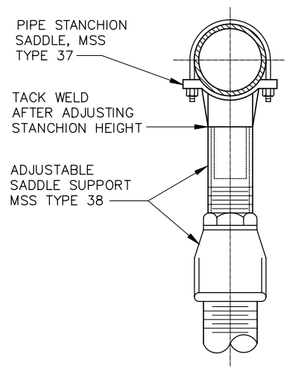
REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA



WELL PLAN DETAIL

SCALE: 3/4" = 1'-0"

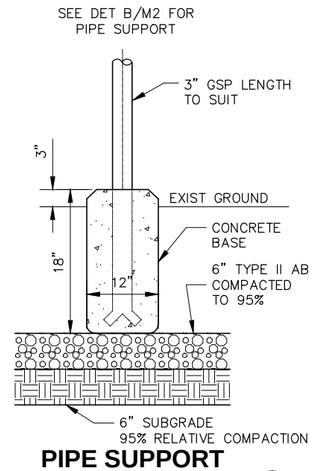
A C3



PIPE SUPPORT DETAIL

NOT TO SCALE

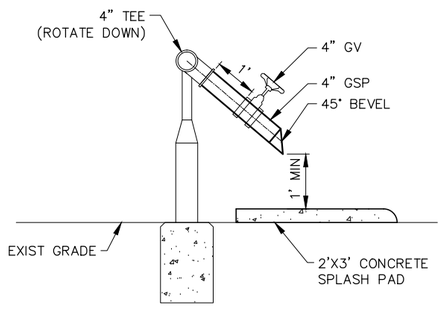
B —



PIPE SUPPORT BASE DETAIL

NOT TO SCALE

C —



PUMP TO WASTE SECTION

NOT TO SCALE

2 —

APPROVED DATE:	
CURTIS LAM, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06-30-2017	

REGISTERED PROFESSIONAL ENGINEER CURTIS W. LAM No. C59049 EXP. 06-30-17 CIVIL STATE OF CALIFORNIA

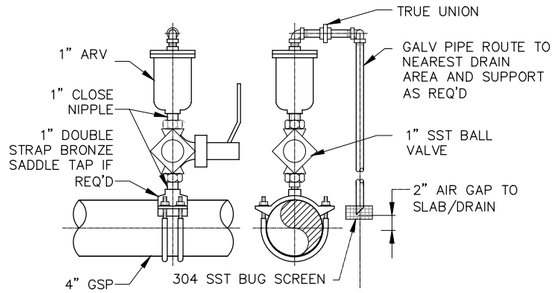
COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE	DESIGNED BY: MKT	WELL PUMP AND PIPING PLAN AND SECTION	SCALE: AS SHOWN
		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT	DATE: OCT 2015
		DRAWN BY: MKT		FILE NO.: 1/4907
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063	

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

M2
SHEET 7 OF 18

S:\Common\Projects\245-CSA 11 Water\03-CAD\04-Mechanical\M2 Welldwg Last saved by: mhirsh Plot Date: 10/27/15 8:34 AM



ARV DETAIL

NOT TO SCALE

A / M2

NOT USED

–

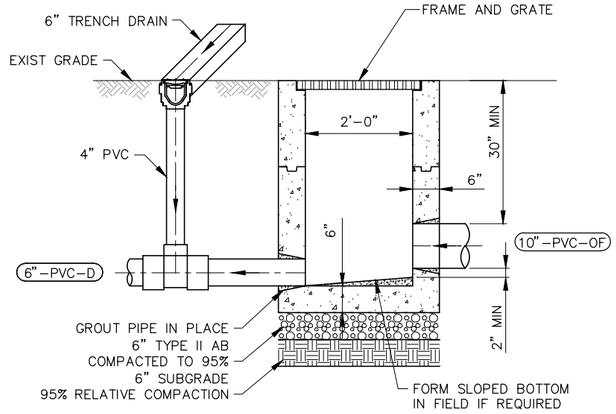
B / –

APPROVED:

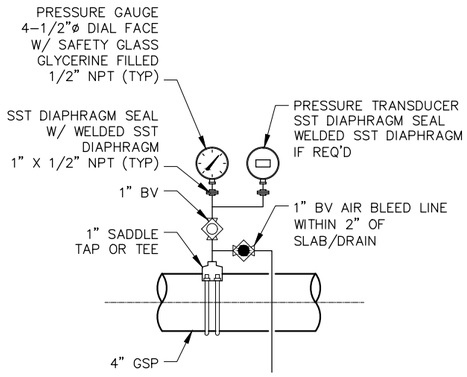
DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA



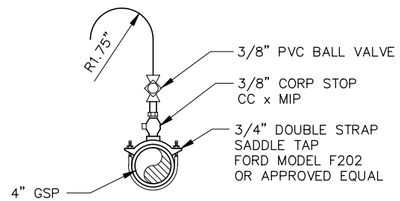
SECTION



PRESSURE GAUGE DETAIL

NOT TO SCALE

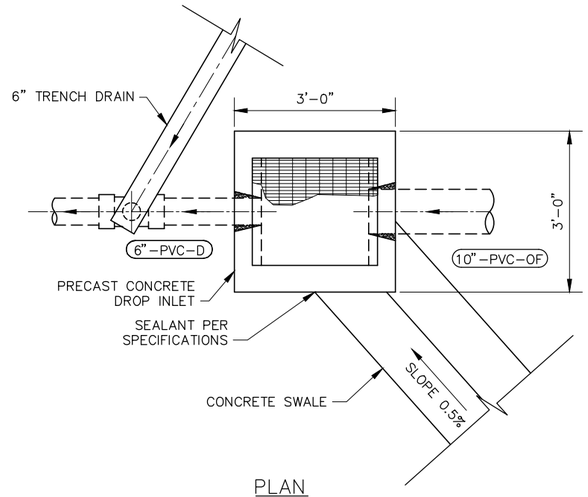
C / –



SAMPLE TAP DETAIL

NOT TO SCALE

D / –



PLAN

DROP INLET DETAIL

NOT TO SCALE

E / –

APPROVED DATE:	
CURTIS LAM, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06-30-2017	

REGISTERED PROFESSIONAL ENGINEER
CURTIS M. LAM
No. C59049
EXP. 06-30-17
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: MKT	MECHANICAL DETAILS - 1
		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT
		DRAWN BY: MKT	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY; 555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: OCT 2015
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M10
SHEET 8 OF 18

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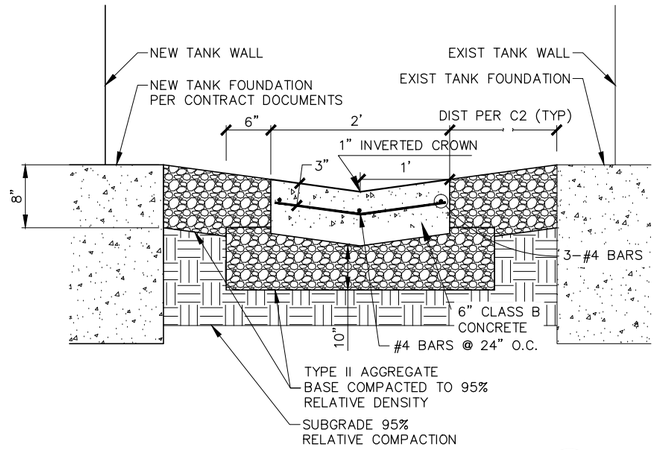
R. C. E. # 48056 / EXPIRES 12-31-2015

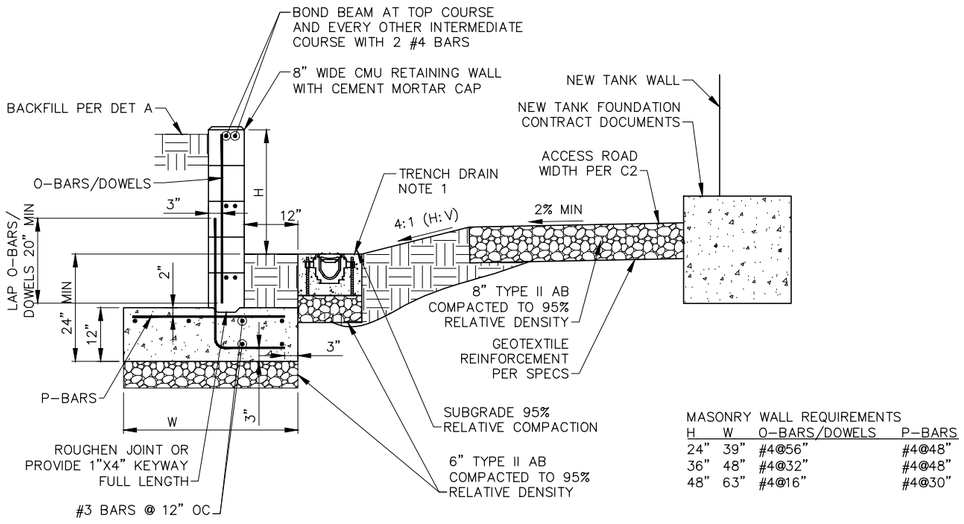
REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA



CONCRETE SWALE SECTION

NOT TO SCALE

1



MASONRY WALL REQUIREMENTS

H	W	O-BARS/DOWELS	P-BARS
24"	39"	#4@56"	#4@48"
36"	48"	#4@32"	#4@48"
48"	63"	#4@16"	#4@30"

NOTES:

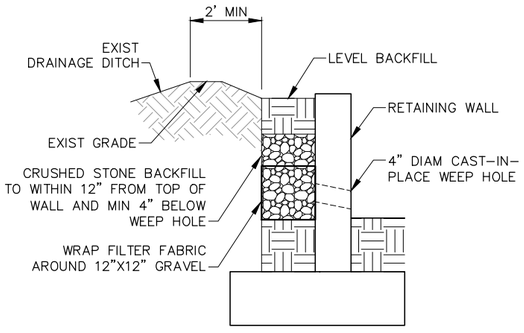
1. TRENCH DRAIN SHALL BE CONSTRUCTED AS FOLLOWS:
   A. MODEL: ZURN Z886 OR EQUAL WITH H-20 TRAFFIC RATED GRATE
   B. SHALLOW INVERT - 4" ±0.5"
   C. REVEAL WIDTH - 6" ±1.25"
   D. FLOW CAPACITY - 0.20 CFS MIN
   E. NEUTRAL SLOPE
   F. 4" REINFORCED CONCRETE ENCASEMENT ON BOTH SIDES AND BELOW TRENCH
   G. FOLLOW ALL MANUFACTURER RECOMMENDATIONS

2. RETAINING WALL SHALL BE 4' HIGH OR LESS. RETAINING WALLS HIGHER THAN 4' SHALL REQUIRE THE WALL TO BE ENGINEERED BY THE CONTRACTOR.

ROAD SECTION

NOT TO SCALE

2



RETAINING WALL BACKFILL DETAIL

NOT TO SCALE

A

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CURTIS LAM, P.E., ENGINEERING CONSULTANT
HYDROSCIENCE ENGINEERS, INC.
R.C.E. # C59049 / EXPIRES 06-30-2017

REGISTERED PROFESSIONAL ENGINEER
CURTIS M. LAM
No. C59049
EXP. 06-30-17
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE

DESIGNED BY: MKT
CHECKED BY: CML
DRAWN BY: MKT

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

MECHANICAL DETAILS - 2

CSA 11 WATER SUPPLY PROJECT

SCALE: AS SHOWN
DATE: OCT 2015
FILE NO.: 1/4907

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

M11
SHEET 9 OF 18

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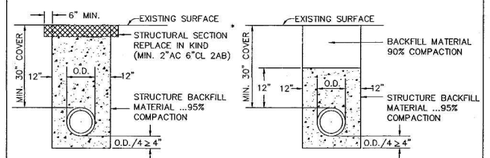
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: A.G.M. | CHECK BY: R.L.F. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 6/95 | REVISED: 7/97

O.D.= OUTSIDE DIAMETER



TYPE A (IN ROADWAY) TYPE B (OUTSIDE ROADWAY)

THERE SHALL BE A MINIMUM OF TWO AND ONE-HALF FEET (30 INCHES) OF COVER OVER ALL PIPES AND CONDUITS UNLESS OTHERWISE DIRECTED BY COUNTY ROAD INSPECTOR.

STRUCTURE BACKFILL MATERIAL...MATERIAL WITH SAND EQUIVALENT NOT LESS THAN 20 AND SIEVE GRADATION BY WEIGHT AS FOLLOWS:

SIEVE SIZE	% PASSING SIEVES
3"	100
NO.4	35-100
NO.30	20-100

BACKFILL MATERIAL...MATERIAL FROM EXCAVATION, FREE FROM STONES OR LUMPS EXCEEDING 3 INCHES IN GREATEST DIMENSION, VEGETABLE MATTER, OR OTHER UNSATISFACTORY MATERIAL.

*IN AREAS OF CEMENT TREATED BASES, THE REPLACEMENT MATERIAL SHALL CONSIST OF A MINIMUM OF 3" OF ASPHALT CONCRETE (TYPE B) OVER A MINIMUM OF 8" OF PORTLAND CEMENT CONCRETE (CLASS B).

FOR TRENCH BACKFILL REQUIREMENTS FOR SANITARY SEWER PIPE, SEE STANDARD DRAWINGS C6 AND C7.

STANDARD TRENCH BACKFILL AND BEDDING DETAIL STORM DRAIN PIPES

B-15

SMC STD DETAIL B-15 (A)
NOT TO SCALE

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

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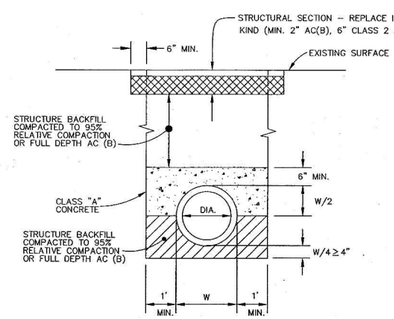
SCALE: NONE | DATE: 6/95 | REVISED: 7/97



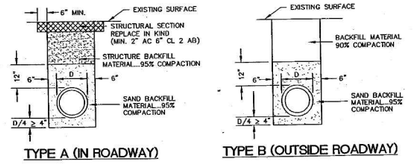
PIPE CAP DETAIL

B-16

SMC STD DETAIL B-16 (B)
NOT TO SCALE

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: M.L. | CHECK BY: D.M.W. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 6/95 | REVISED: 7/97



TYPE A (IN ROADWAY) TYPE B (OUTSIDE ROADWAY)

NOTES

1. SAND.... MATERIAL FREE FROM ORGANIC MATTER AND CLAY WITH A SIEVE GRADATION BY WEIGHT AS FOLLOWS:

SIEVE SIZE	% PASSING SIEVE
No. 4	100
No. 200	0-5

2. STRUCTURE BACKFILL MATERIAL.... MATERIAL WITH SAND EQUIVALENT NOT LESS THAN 20 AND SIEVE GRADATION BY WEIGHT AS FOLLOWS:

SIEVE SIZE	% PASSING SIEVE
3"	100
No. 4	35-100
No. 30	20-100

3. BACKFILL MATERIAL.... MATERIAL FROM EXCAVATION, FREE FROM STONES OR LUMPS EXCEEDING 3 INCHES GREATEST DIMENSION, ORGANIC MATTER, OR OTHER UNSATISFACTORY MATERIAL.

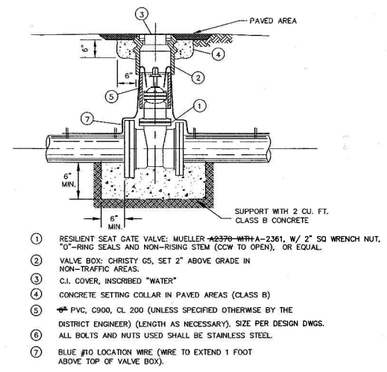
STANDARD TRENCH BACKFILL AND BEDDING DETAIL FOR WATER LINE INSTALLATIONS

W-10

SMC STD DETAIL W-10 (C)
NOT TO SCALE

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: N.M.A. | CHECK BY: D.M.W. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 6/95 | REVISED: 7/97



① RESILIENT SEAT GATE VALVE: MUELLER ~~A-2370 WITH~~ A-2361, W/ 2" SQ WRENCH NUT, "O"-RING SEALS AND NON-RISING STEM (CCW TO OPEN), OR EQUAL.
② VALVE BOX: CHRISTY G5, SET 2" ABOVE GRADE IN NON-TRAFFIC AREAS.
③ C.I. COVER, INSCRIBED "WATER"
④ CONCRETE SETTING COLLAR IN PAVED AREAS (CLASS B)
⑤ ~~6"~~ PVC, C900, CL 200 (UNLESS SPECIFIED OTHERWISE BY THE DISTRICT ENGINEER) (LENGTH AS NECESSARY). SIZE PER DESIGN DWGS.
⑥ ALL BOLTS AND NUTS USED SHALL BE STAINLESS STEEL.
⑦ BLUE #10 LOCATION WIRE (WIRE TO EXTEND 1 FOOT ABOVE TOP OF VALVE BOX).

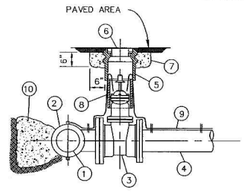
STANDARD GATE VALVE ASSEMBLY

W-3

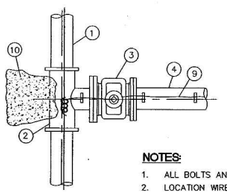
SMC STD DETAIL W-3 (D)
NOT TO SCALE

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: N.M.A. | CHECK BY: D.M.W. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 4/97 | REVISED: 6/97



① WATER PIPE MAIN (EXISTING)
② TAPPING SLEEVE- JCM 432, SST, ~~MUELLER H-615~~, OR EQUAL
③ ~~TAPPING~~ VALVE-MUELLER SQ WRENCH NUT, ~~H-667~~ OR EQUAL. SIZE SAME AS LATERAL. A-2361, W/2"
④ LATERAL, PVC C900, CL-200 (OR AS SPECIFIED BY DISTRICT ENGINEER)
⑤ VALVE BOX, CHRISTY G-5, SET 2" ABOVE GRADE IN NON-TRAFFIC AREAS
⑥ C.I. COVER, INSCRIBED "WATER"
⑦ CONCRETE SETTING COLLAR IN PAVED AREAS (CLASS-B)
⑧ ~~6"~~ PVC PIPE C900 (LENGTH AS NECESSARY), SIZE PER DESIGN DWGS
⑨ BLUE #10 LOCATION WIRE (WIRE TO EXTEND 1 FOOT ABOVE TOP OF VALVE BOX)
⑩ STANDARD WATER MAIN THRUST BLOCK (SEE W-11)



NOTES:
1. ALL BOLTS AND NUTS USED SHALL BE STAINLESS STEEL.
2. LOCATION WIRE TO BE CONNECTED TO MAIN LINE WIRE, WHERE EXISTING.

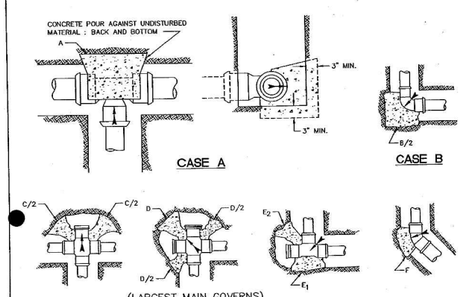
STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

W-4

SMC STD DETAIL W-4 (E)
NOT TO SCALE

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: M.L. | CHECK BY: D.M.W. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 6/95 | REVISED: _____



CASE A CASE B CASE C CASE D (LARGEST MAIN GOVERNS) CASE E CASE F

NOTES:
1. CASE "A" IS TYPICAL FOR ALL.
2. ALL BLOCKS TO BE KEPT CLEAR OF LUGS.
3. UNSUPPORTED SURFACES TO BE FORMED.
4. ARROWS ON CASE "A", "C" & "E" INDICATE MAINS WHICH DETERMINE BEARING AREA.
5. BASED ON 150 P.S.I. PRESSURE, 1,000 P.S.F. SOIL BEARING.
6. CONCRETE SHALL BE CLASS B PER STANDARD SPECIFICATIONS.

REQUIRED BEARING AREAS-SQ.FT.							
	A	B	C	D	E_1	E_2	F
4"	2	3	3	3	2	3	2
6"	5	6	7	7	5	7	4
8"	8	12	11	11	8	11	6
10"	12	18	17	17	12	17	8
12"	17	24	24	24	17	24	12

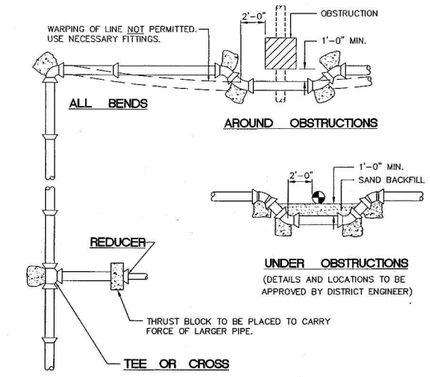
STANDARD WATER MAIN THRUST BLOCK

W-11

SMC STD DETAIL W-11 (F)
NOT TO SCALE

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: M.L. | CHECK BY: D.M.W. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 6/95 | REVISED: 7/97



NOTE: IF FLANGED FITTINGS ARE SPECIFIED, USE STAINLESS STEEL BOLTS AND NUTS.

STANDARD PIPE INSTALLATION DETAILS

W-12

SMC STD DETAIL W-12 (G)
NOT TO SCALE

APPROVED DATE:	
CURTIS LAM, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06-30-2017	

REGISTERED PROFESSIONAL ENGINEER
CURTIS M. LAM
No. C59049
EXP. 06-30-17
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: MKT	SAN MATEO COUNTY STANDARD DETAILS
		CHECKED BY: CML	
		DRAWN BY: MKT	CSA 11 WATER SUPPLY PROJECT
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN | DATE: OCT 2015 | FILE NO.: 1/4907

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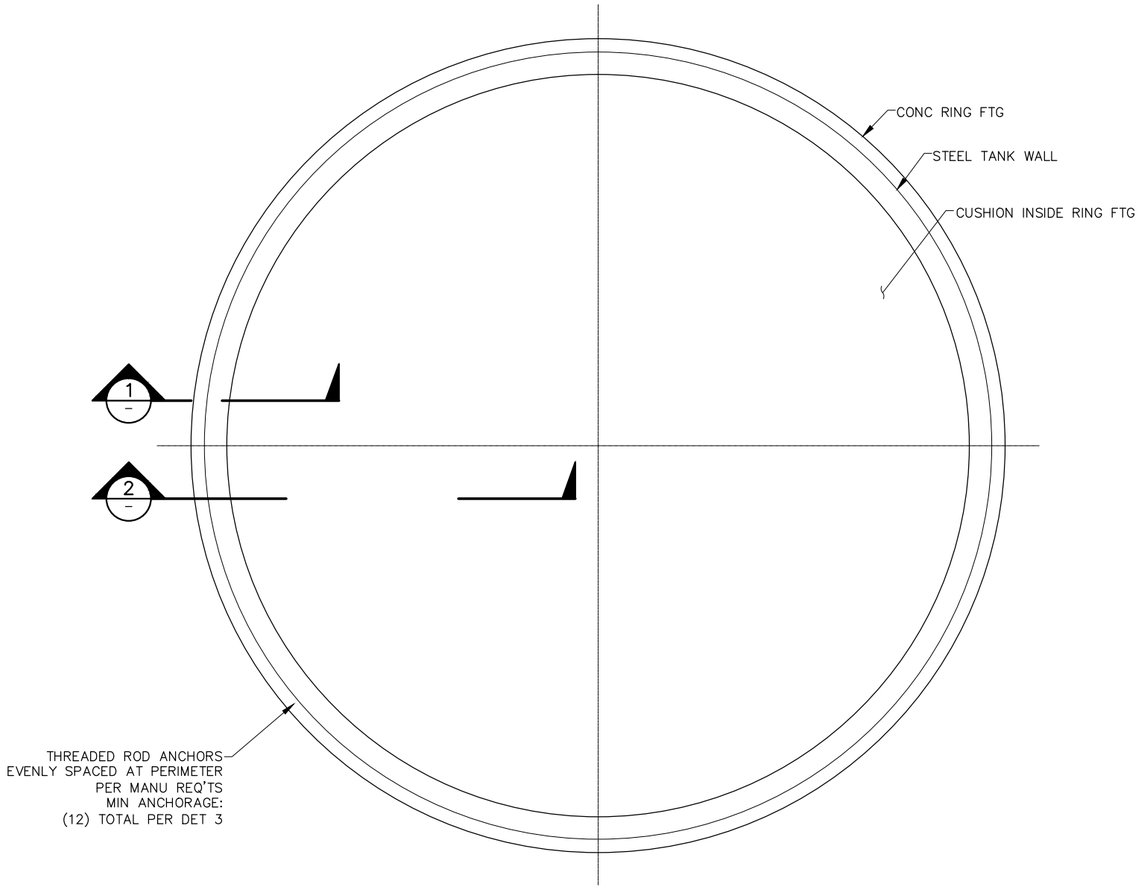


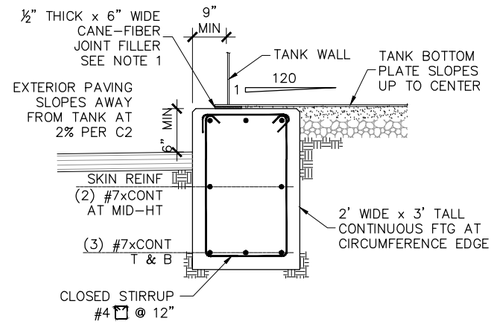
RING FDN - WATER TANK

A

1/4" = 1'-0"

NOTES:

1. SCOPE OF STRUCTURAL WORK INCLUDES: CONCRETE PADS FOR WATER PROCESS EQUIPMENT AND TANK FOUNDATION.
2. BUILDING CODE IS 2010 CALIFORNIA BUILDING CODE, AND ALL REFERENCED STANDARDS, CODES, AND GUIDELINES.
3. WORKMANSHIP: ALL WORK SHALL CONFORM TO THE APPROVED GEOTECHNICAL REPORT AND THE PROJECT SPECIFICATIONS. STRICTER REQUIREMENTS APPLY.
4. THE APPROVED GEOTECHNICAL REPORT IS:
   TITLE: GEOTECHNICAL ENGINEERING STUDY COUNTY OF SAN MATEO CSA 11 WATER SUPPLY, SAN MATEO COUNTY, CA
   PROJECT NO: 6604-02-14
   BY: CARLTON ENGINEERING INC.
   2365 IRON POINT ROAD, FOLSOM, CA 94530
   DATE: AUGUST 2014
5. UNLESS OTHERWISE INDICATED, FOUNDATION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THIS REPORT. THE REPORT IS PART OF THESE DOCUMENTS AND SHOULD BE KEPT ON THE JOB SITE AT ALL TIMES.
6. ALL EXCAVATIONS AND COMPACTION WORK SHALL BE EXAMINED AND CERTIFIED BY THE SOILS ENGINEER OR HIS REPRESENTATIVE PRIOR TO THE PLACEMENT OF ANY REINFORCING STEEL OR CONCRETE.
7. THESE DRAWINGS ARE INTENDED AS A GUIDE. TANK MANUFACTURER SHALL DESIGN FOUNDATION AND SUBMIT CALCULATIONS PER SPECIFICATIONS.



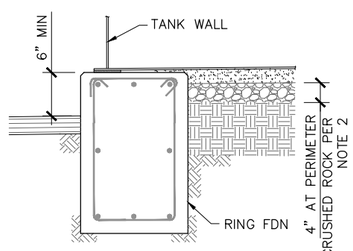
NOTES:
1. USE OF CANE-FIBER IS CONDITIONAL, BASED ON TOP OF CONC FTG ±⅛" OVER ANY 30' CIRCUMFERENCE, WITH MAX VARIANCE = ¼" FROM BASELINE REFERENCE. WHERE THIS TOLERANCE IS EXCEEDED, EDGE MUST BE GROUTED. (1" THICK x 6" WIDE RING)
2. SUBGRADE PREPARATION AND FLEXIBLE PAVING CUSHION PER DETAIL 2.
3. MECH ANCHORING REQ'D PER DETAIL 3.
4. FOUNDATION SHOWN IS A MINIMUM DESIGN. TANK DESIGN-BUILD CONTRACTOR SHALL APPROVE THIS DESIGN, OR PROVIDE A MORE STRINGENT ALTERNATE DESIGN.
5. SINGLE POUR LENGTH = 70FT MAX ALONG THE CIRCUMFERENCE. ADJACENT POURS SHALL BE PLACED AT LEAST 72 HOUR APART.
6. SEE CONCRETE NOTES FOR CONSTRUCTION JOINTS.

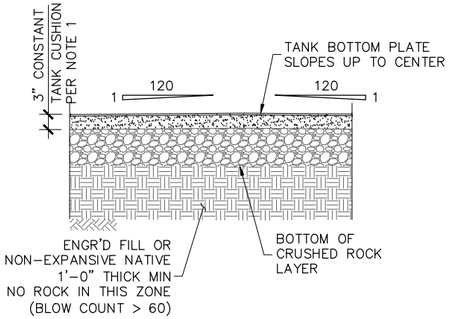
RING FTG AT STEEL TANK

1

NOT TO SCALE

NOTES:
1. TANK CUSHION MAY BE:
   A. ASPHALT
   B. CONCRETE (UNREINFORCED, SAWCUT AT 10'x10' GRID)
2. CRUSHED ROCK SHALL BE WASHED HARD ROCK AGGREGATE ⅜" MIN, ¾" MAX ROCK SHALL BE VIBRO-PLATED WITH 2 PASSES.
3. CRUSHED ROCK LAYER THICKNESS SHALL VARY, WITH BOTTOM SURFACE SLOPING TOWARD TANK CENTER; MIN SLOPE = 0.5%.

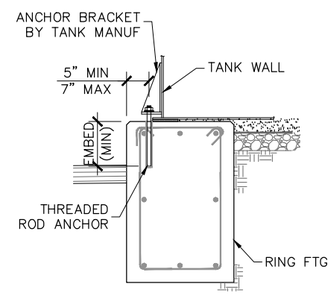




SUBGRADE FTG AT STEEL TANK

2

NOT TO SCALE



NOTES:
1. THREADED ROD SHALL BE ⅞" DIA, HOT DIP GALV A36 (OR F1554 GR 36) w/ 12" MIN EMBED.
2. PRE-APPROVED EPOXY ADHESIVES:
   A. HILTI HIT-RE 500-SD ESR-2322
   B. SIMPSON SET-XP ESR-2508
3. EPOXY SHALL BE INSTALLED PER MANU REQUIREMENTS AND ESR REPORTS.
4. SPECIAL INSPECTION REQ'D.
5. DO NOT DAMAGE EXIST BARS DURING DRILLING.
6. DO NOT INSTALL ANCHORS BEFORE CONCRETE IS 21 DAYS OLD.
7. ANCHORAGE SHOWN IS MINIMUM DESIGN. TANK DESIGN-BUILD CONTRACTOR SHALL APPROVE THIS DESIGN, OR PROVIDE MORE STRINGENT DESIGN.

PERIMETER ANCHORS

3

NOT TO SCALE

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED DATE:	
CURTIS LAM, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # C59049 / EXPIRES 06-30-2017	

REGISTERED PROFESSIONAL ENGINEER CURTIS W. LAM No. C59049 EXP. 06-30-17 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: MKT	TANK FOUNDATION DETAILS
		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT
		DRAWN BY: MKT	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY

SCALE: AS SHOWN
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555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

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SHEET 11 OF 18

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DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

ELECTRICAL ABBREVIATIONS

A	AMPERES	I	INTERLOCK	R	RED
AC	ALTERNATING CURRENT	I/O	INPUT/OUTPUT	REC	RECEPTACLE
AFF	ABOVE FINISHED FLOOR	INST	INSTRUMENTATION	REF	REFERENCE
AI	ANALOG INPUT	ISC	SHORT CIRCUIT INTERRUPTING CURRENT (SYMM)	RGS	RIGID GALVANIZED STEEL
AIC	AMPS INTERRUPTING CAPACITY, SYMM			RMS	ROOT MEAN SQUARE
AM	AMMETER	ISR	INTRINSICALLY SAFE RELAY	RSC	RIGID STEEL CONDUIT
AO	ANALOG OUTPUT	J	JUNCTION BOX	RT	RESET TIMER
ATS	AUTOMATIC TRANSFER SWITCH	J-BOX	JUNCTION BOX	RTM	RUN TIME METER
AUX	AUXILIARY	K	KILO, THOUSAND (PREFIX)	RTU	REMOTE TERMINAL UNIT
AWG	AMERICAN WIRE GUAGE	KCMIL	THOUSAND CIRCULAR MILS	RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
B	BLUE	KVA	KILOVOLT-AMPERES	RVNR	REDUCED VOLTAGE NON-REVERSING
BATT	BATTERY	KW	KILOWATTS	RVSS	REDUCED VOLTAGE SOFT START
BC	BARE COPPER	LC	LIGHTING CONTACTOR	(R)	REWIRE, RELOCATE, REVISE, REUSE
BKR	BREAKER	LOS	LOCK-OUT STOP SWITCH		
BLDG	BUILDING	LI	LEVEL INDICATOR	S	SWITCH
C	CONDUIT, CLOSE, CONTROL	LIT	LEVEL INDICATOR TRANSMITTER	SEC	SECONDARY
CAB	CABINET	LS	LEVEL SWITCH	SECS	SECONDS
CB	CIRCUIT BREAKER	LTG	LIGHTING	SEQ	SEQUENCE
CKT	CIRCUIT	M	MOTOR CONTACTOR	SHLD	SHIELDED
CNTRL	CONTROL	mA	MILLIAMPERES	SHT	SHEET
COAX	COAXIAL CABLE	MAX	MAXIMUM	SP	SET POINT
COMM	COMMUNICATION PORT	MCC	MOTOR CONTROL CENTER	SPEC	SPECIFICATION
CP	CONTROL PANEL	MCP	MOTOR CIRCUIT PROTECTOR	SPST	SINGLE POLE, SINGLE THROW
CPT	CONTROL POWER TRANSFORMER	MD	MOISTURE DETECTION	SR	SENSING RELAY
CR	CONTROL RELAY	MFR	MANUFACTURER	SS	SOFT STARTER, SURGE SUPPRSSOR
CT	CURRENT TRANSFORMER	MH	MANHOLE	STA	STATION
CU	COPPER	MIN	MINIMUM	STD	STANDARD
DC	DIRECT CURRENT	MINS	MINUTES	SV	SOLENOID VALVE
DI	DIGITAL INPUT	MLO	MAIN LUGS ONLY	SW	SWITCH
DISC	DISCONNECT	MOA	MANUAL-OFF-AUTO	SWBD	SWITCHBOARD
DO	DIGITAL OUTPUT	MOV	MOTOR OPERATED VALVE	SYMM	SYMMETRICAL
DPDT	DOUBLE POLE, DOUBLE THROW	MTC	EMPTY CONDUIT WITH PULLROPE	T	TRIP
DWG	DRAWING	MTD	MANUAL TRANSFER SWITCH	TB	TERMINAL BLOCK
(D)	DEMOLISH	MTR	MOTOR	TDD,TDE	TIME DELAY RELAY
EF	EXHAUST FAN	N	NEUTRAL	TEL CO	TELEPHONE COMPANY
ELEV	ELEVATION	NC	NORMALLY CLOSED	TM	THERMAL MAGNETIC
EMERG	EMERGENCY	NIC	NOT IN CONTRACT	TEMP	TEMPERATURE
EMT	ELECTRICAL METALLIC TUBING	NL	NIGHT LIGHT	TS	TEMPERATURE SWITCH
ETM	ELAPSED TIME METER	NO	NORMALLY OPEN	TTB	TELEPHONE TERMINAL BACKBOARD
(E)	EXISTING	NTS	NOT TO SCALE	TVSS	TRANSCIENT VOLTAGE SURGE SUPPRESSION
FACP	FIRE ALARM CONTROL PANEL	(N)	NEW		
FI	FLOW INDICATOR	O	OPEN	TWP	TWISTED PAIR
FIT	FLOW INDICATOR TRANSDUCER	OC	ON CENTER	TWSP	TWISTED SHIELDED PAIR
FLA	FULL LOAD AMPS	OI	OPERATOR INTERFACE	TYP	TYPICAL
FO	FAIL OPEN	OL	OVERLOAD	UG	UNDERGROUND
FLEX	FLEX METAL LIQUID TIGHT CONDUIT	P	PHASE, POLE, PRESSURE	UON	UNLESS OTHERWISE NOTED
FS	FLOW SWITCH	PB	PULL BOX, PUSHBUTTON	V	VOLTAGE, VALVE
FTS	FLOAT SWITCH	PCP	PLANT CONTROL PANEL	VA	VOLT AMPS
FVNR	FULL VOLTAGE NON-REVERSING	PF	POWER FACTOR	VFD	VARIABLE FREQUENCY DRIVE
FVR	FULL VOLTAGE REVERSING	PFR	POWER (PHASE) FAIL RELAY	VM	VOLTMETER
(F)	FUTURE	pH	NEGATIVE LOG OF HYDROGEN ION CONCENTRATION	VS	VARIABLE SPEED
G	GREEN			W	WATTS, WHITE, WIRE
GALV	GALVANIZED	PI	PRESSURE INDICATOR	W/	WITH
GEN	GENERATOR	PLC	PROGRAMMABLE LOGIC CONTROLLER	WHM	WATT-HOUR METER
GFCI	GROUND FAULT CIRCUIT INTERRUPT	PMP	PUMP	WM	WATTMETER
GND	GROUND	PNL	PANEL	WP	WATERPROOF, WEATHERPROOF
GRS	GALVANIZED RIGID STEEL CONDUIT	POT	POTENTIOMETER	XFMR	TRANSFORMER
GRS-PVC	PVC COATED GRS CONDUIT	PR	PAIR, TWISTED AND SHIELDED CABLE	XFR	TRANSFER
HI	HIGH	PROVIDE	FURNISH, INSTALL AND CONNECT	Y	YELLOW
HID	HIGH INTENSITY DISCHARGE	PS	PRESSURE SWITCH	ZAU	INTRUSION ALARM
HOA	HAND-OFF-AUTO	PT	POTENTIAL TRANSFORMER	ZS	LIMIT SWITCH
HP	HORSEPOWER	PSI	POUNDS PER SQUARE INCH		
HPS	HIGH PRESSURE SODIUM	PVC	POLYVINYLCHLORIDE		
HTR	HEATER	PWR	POWER		
HVAC	HEATING, VENTILATING, A/C				
HZ	HERTZ (CYCLES PER SECOND)				
HZD	HAZARDOUS AREA, EXPLOSION PROOF				

WIRING - CONNECTIONS

	PANEL OR EQUIPMENT WIRING
	FIELD WIRING
	EXISTING WIRING
	CONDUCTORS – NOT CONNECTED
	CONDUCTORS – CONNECTED
	GROUND
	CHASSIS OR FRAME GROUND
	PLUG AND RECEPTACLE
	INCOMING LINE
	TERMINAL BLOCKS
	TERMINALS
	PULL APART TERMINAL BLOCKS
	SHIELDED CABLE

SYMBOLS - PLAN

	CONDUIT CONCEALED IN WALL OR CEILING 3/4"C-2#12, 1#12GND UON
	CONDUIT, IN SLAB OR BELOW GRADE 3/4"C-2#12, 1#12GND UON
	CONDUIT, EXPOSED 3/4"C-2#12, 1#12GND UON
	CONDUIT STUBBED OUT AND CAPPED
	CONDUIT BENDS TOWARD OBSERVER
	CONDUIT BENDS AWAY FROM OBSERVER
G	BARE COPPER GROUND WIRE
G	GROUND CONNECTION BOLTED TYPE
G	GROUND CONNECTION EXOTHERMIC WELD
	DISCONNECT SWITCH
	FIELD MOUNTED DEVICE
	SPECIAL RECEPTACLE, SIZE AS INDICATED
	JUNCTION BOX
	CONTROL STATION
	WALL MOUNTED LIGHT FIXTURE
	SITE LIGHT FIXTURE
	FLUORESCENT LIGHT FIXTURE
A 2/32	LIGHT FIXTURE TYPE "A" WITH 2-32 WATT LAMPS, TYPICAL FOR ROOM NOTED, UON.
#	DUPLEX RECEPTACLE AT +18" UON # = CIRCUIT NUMBER
#	DOUBLE DUPLEX RECEPTACLE AT +18" UON # = CIRCUIT NUMBER
$\$^{2}_{G}$	TOGGLE SWITCH AT +48" UON SUBSCRIPT – CIRCUIT CONTROLLED SUPERSCRIPT – BLANK = 1 POLE 2 = 2 POLE 3 = 3 WAY M = MOTOR OVERLOAD T = SPRING WOUND TIMER
XX	CONDUIT AND CONDUCTOR DESIGNATION SEE SCHEDULE FOR SIZE
	3 PHASE SPECIAL RECEPTACLE, SIZE AS INDIATED
	TELEPHONE OUTLET
TS	TAMPER SWITCH
FS	FLOW SWITCH
	THERMOSTAT AT +48" UON
	REMOVE I/O DATA OUTLET
	FIBER OPTIC OUTLET
GW	GROUND ROD, 3/4" X 10'-0" GW INDICATES GROUND ROD IN HANDHOLE SEE UFER GROUND DETAIL.
	INTERCEPTION POINT – DEMO PLANS: EXISTING TO REMAIN TO EXISTING TO BE REMOVED NEW PLANS: EXISTING TO NEW
MS	MOTION DETECTOR
PC	PHOTOCELL

SWITCHES - PROCESS

	FLOW SWITCH – CLOSES UPON INCREASING FLOW
	FLOW SWITCH – OPENS UPON INCREASING FLOW
	LEVEL SWITCH – CLOSES UPON INCREASING LEVEL
	LEVEL SWITCH – OPENS UPON INCREASING LEVEL
	PRESSURE SWITCH – CLOSES UPON INCREASING PRESSURE (INCREASING VACUUM)
	PRESSURE SWITCH – OPENS UPON INCREASING PRESSURE (INCREASING VACUUM)
	PRESSURE SWITCH – OPENS UPON INCREASING PRESSURE (INCREASING VACUUM)
	TEMPERATURE SWITCH – CLOSES UPON INCREASING TEMPERATURE
	TEMPERATURE SWITCH – OPENS UPON INCREASING TEMPERATURE
	LIMIT SWITCH – CLOSES AT SET LIMIT
	LIMIT SWITCH – OPENS AT SET LIMIT
	PROXIMITY SWITCH – CLOSES UPON DECREASING DISTANCE
	PROXIMITY SWITCH – CLOSES UPON DECREASING DISTANCE
	TORQUE SWITCH – CLOSES UPON INCREASING TORQUE
	TORQUE SWITCH – OPENS UPON INCREASING TORQUE

SWITCHES - OPERATOR

	TOGGLE OR DISCONNECT SWITCH
	PUSHBUTTON – NORMALLY OPEN, MOMENTARY ACTION
	PUSHBUTTON– NORMALLY CLOSED, MOMENTARY ACTION
	LEVEL SWITCH – OPENS UPON INCREASING LEVEL
HAND OFF AUTO	SELECTOR SWITCH, 3 POSITION– CONTACT STATUS SHOWN EXISTS AT POSITION OF H-HAND, O-OFF, A-AUTO

DEVICES - FRONT PANEL

W	INDICATING LIGHT, LETTER INDICATES COLOR R=RED, G=GREEN, A=AMBER, W=WHITE Y=YELLOW, B=BLUE
PTT W	INDICATING LIGHT, PUSH TO TEST
ETM	ELAPSED TIME METER

DEVICES - MISCELLANEOUS

	AUDIBLE ALARM
HTR	HEATER
20	MOTOR. # = MOTOR HORSEPOWER
	TRANSFORMER
G	GENERATOR
SD	SMOKE DETECTOR

DEVICES - RELAY

CR 1 / 28, 111	CONTROL RELAY CR1 WITH NORMALLY OPEN CONTACT ON LINE 28 AND NORMALLY CONTACT ON LINE 111
TR 2	TIME DELAY RELAY TR2 – ADJUSTABLE TIME DELAY RANGE AND SETTING AS SHOWN
TDE	TIME DELAY RELAY ON ENERGIZATION
TDD	TIME DELAY RELAY ON ENERGIZATION
M1	CONTACTOR OR STARTER M1
SV	SOLENOID
CR-1 / (105)	NORMALLY OPEN RELAY CONTACT– ACTUATED BY RELAY CR-1 COIL ON LINE 105
CR-1	NORMALLY CLOSED RELAY CONTACT– ACTUATED BY RELAY CR-1 COIL
	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER RELAY IS ENERGIZED
	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER RELAY IS ENERGIZED
	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER RELAY IS DEENERGIZED
	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER RELAY IS DEENERGIZED

DEVICES - PROTECTIVE

	DISCONNECT, 3 POLE CONTACT ON LINE 28 AND NORMALLY CONTACT ON LINE 111
	CIRCUIT BREAKER, 3 POLE TM = THERMAL MAGNETIC MCP = MOTOR CIRCUIT PROTECTOR
OL	THERMAL OVERLOAD CONTACT
	THERMAL OVERLOAD ELEMENT
	FUSE WITH BLOWN FUSE INDICATOR LIGHT
	FUSE

GENERAL NOTES

1. PRIOR TO BEGINNING EXCAVATION, VERIFY LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING, ETC. PROVIDE EXCAVATION BACKFILL, SUPPORT, SAWCUTTING, PATCHING, PAVING, ETC. AS REQUIRED. BACKFILL EVACUATIONS TO 90 PERCENT COMPACTION AND PATCH TO MATCH EXISTING CONDITIONS.
2. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM ALL PULLBOXES, MANHOLES, AND ENCLOSURES. DISPOSE OF AS DIRECTED BY THE OWNER.
3. VERIFY DIMENSIONS IN FIELD PRIOR TO BEGINNING WORK.
4. FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED SUBMITTALS, WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT REQUIRED TO MAKE A COMPLETE AND OPERATIONAL SYSTEM.
5. CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL INCLUDE IN HIS COSTS, THE REQUIREMENTS TO MAKE HIS WORK MEET THE EXISTING CONDITIONS.
6. THIS A STANDARD LEGEND SHEET. NOT ALL SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THE PLANS.

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APPROVED DATE:

SANDY SCHULER, P.E., ENGINEERING CONSULTANT
HYDROSCIENCE ENGINEERS, INC.
R.C.E. # E15453 / EXPIRES 06-30-2017

REGISTERED PROFESSIONAL ENGINEER Sandy L. Schuler No. 15453 Exp 6-30-2017 ELECTRICAL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: SLS
CHECKED BY: CML
DRAWN BY: SLS

ABBREVIATIONS AND LEGEND

CSA 11 WATER SUPPLY PROJECT

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: OCT 2015
FILE NO.: 1/4907

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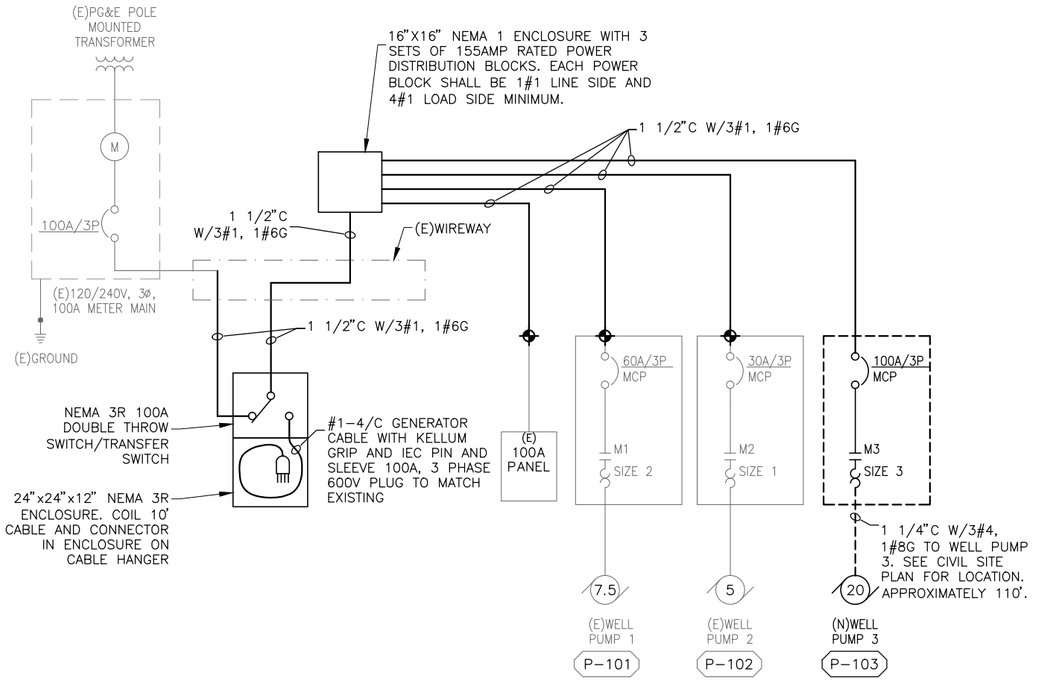

ONELINE DIAGRAM

SCALE: NONE

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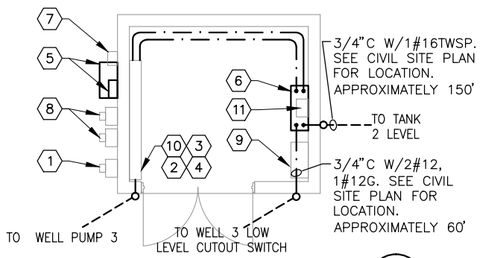

(E) BUILDING FLOOR PLAN

SCALE: NONE

A

NOTES

1. (E) SERVICE METER/MAIN 'LABELED PESCADERO CSA11'. SEE EXTERIOR ELEVATION BELOW.
2. (E) PANELBOARD. SEE ELEVATION BELOW.
3. (E) MOTOR COMBINATION STARTER, SEE ELEVATION BELOW.
4. MOTOR COMBINATION STARTER FOR WELL PUMP 3. SEE ELEVATION BELOW.
5. NEMA 3R MANUAL TRANSFER SWITCH WITH NEMA 3R LOCKABLE GENERATOR CONNECTION CABLE ENCLOSURE.
6. RELOCATE (E) CONTROL PANEL WITH (E) MICROMAC AND (E) RACO AUTODIALER. CONTRACTOR SHALL ASSURE THAT (E) CONTROL PANEL IS INSTALLED TO MEET NEC CLEAR WORKING SPACE. AVOID INSTALLING OVER (E) MECHANICAL PIPING.
7. (E) TELEPHONE SERVICE ENTRANCE.
8. (E) METERED SERVICES NOT A PART OF THIS PROJECT.
9. (E) CATHODIC PROTECTION CABINET.
10. (E) WIREWAY WITH (E) AND NEW DEVICES ABOVE AND BELOW, SEE ELEVATIONS BELOW.
11. (E) DOUBLE THROW SAFETY SWITCH/TRANSFER SWITCH TO BE DEMOLISHED. REMOVE ALL UNUSED BOXES, CONDCUTORS, DEVICES
12. SEAL AROUND ALL CONDUITS ENTERING BUILDING TO PREVENT ENTRANCE OF WATER.

GENERAL DEMOLITION NOTES

THESE DEMOLITION DRAWINGS ARE INTENDED TO ASSIST THE ELECTRICAL CONTRACTOR IN ESTABLISHING AREAS REQUIRING DISCONNECTION, REMOVAL, OR RELOCATION OF ELECTRICAL EQUIPMENT, OUTLETS, WIRING, DEVICES, FIXTURES, ETC. AND DO NOT INDICATE ALL DEVICES, EXACT QUANTITIES OR EXTENT OF DEMOLITION AND RECONNECTION WHICH MAY BE REQUIRED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOBSITE AND THOROUGHLY EXAMINE DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS WHICH MAY BE NECESSARY TO PERFORM DEMOLITION, RECONNECTION, AND TEMPORARY POWER CONNECTIONS IN HIS BID.

DEMOLITION WORK SHALL BE ACCOMPLISHED IN PHASES THROUGHOUT THE CONSTRUCTION PERIOD. ALL DEMOLITION WORK SHALL BE COORDINATED BY THE GENERAL CONTRACTOR AND CONSTRUCTION MANAGER. THE ELECTRICAL CONTRACTOR SHALL CREATE A DEMOLITION SCHEDULE FOR THE GENERAL CONTRACTOR AND MAKE ALLOWANCES IN HIS BID FOR A PHASED DEMOLITION SCHEDULE. INSTALLATION AND/OR RELOCATION OF NEW OR EXISTING EQUIPMENT MAY REQUIRE AFTER-HOURS WORK. INCLUDE PREMIUM PORTION OF OVERTIME IN BID TO ALLOW FOR AFTER HOURS CONSTRUCTION WORK. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR OVERTIME.

LOADS ASSOCIATED WITH THE WELL SHALL REMAIN OPERATIONAL THROUGHOUT THE DURATION OF THE CONSTRUCTION PROCESS WITH MINIMAL DOWN TIME FOR POWER TRANSFER EXCEPT WHERE NOTED AS NON-CRITICAL OR HOURS OF PERMITTED DOWNTIME. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUITY IN ELECTRICAL SERVICE AND MAKE ALLOWANCES IN HIS BID FOR TEMPORARY WIRING, CONNECTIONS, POWER, AND PORTABLE GENERATOR AS REQUIRED TO MINIMIZE DISRUPTION. COORDINATE REQUIREMENTS WITH THE GENERAL CONTRACTOR AND CONSTRUCTION MANAGER.

PRIOR TO DISPOSAL OF EXISTING EQUIPMENT, ELECTRICAL CONTRACTOR SHALL COORDINATE WITH CONSTRUCTION MANAGER WITH A LIST OF SALVAGE EQUIPMENT TO BE RETAINED FOR FUTURE USE. THE ELECTRICAL CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF ALL OTHER ELECTRICAL DEMOLISHED EQUIPMENT, DRIVES, DISCONNECTS, CABINETS ETC. AS REQUIRED.

COORDINATE THE ELECTRICAL DEMOLITION WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES AT THE JOBSITE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARLY IDENTIFYING ALL CONDUITS, WIRING AND EQUIPMENT WHICH MUST BE MAINTAINED TO PREVENT DAMAGE TO ELECTRICAL CIRCUITS AND EQUIPMENT BY THE DEMOLITION WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR REPAIR OR REPLACEMENT OF ELECTRICAL CIRCUITS AND/OR EQUIPMENT DAMAGED BY THE DEMOLITION WORK OF OTHERS RESULTING FROM THE FAILURE OF THE ELECTRICAL CONTRACTOR TO CLEARLY IDENTIFY SAID CIRCUITS OR EQUIPMENT.

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DATE: _____

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R. C. E. # 48056 / EXPIRES 12-31-2015

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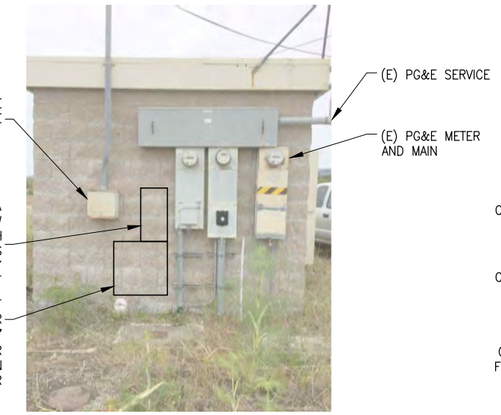
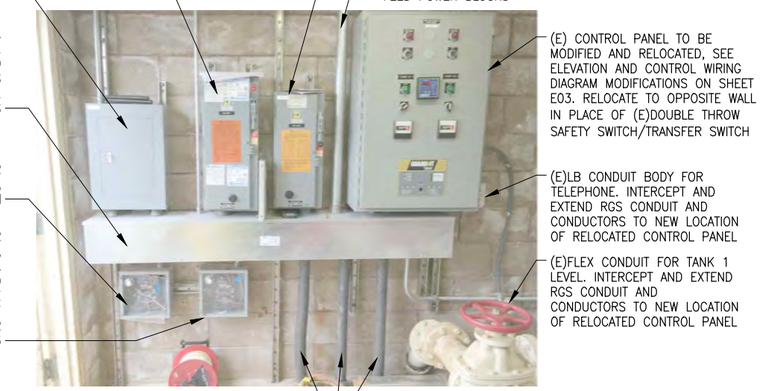


(E)EXTERIOR ELEVATION MODIFICATIONS

SCALE: NONE

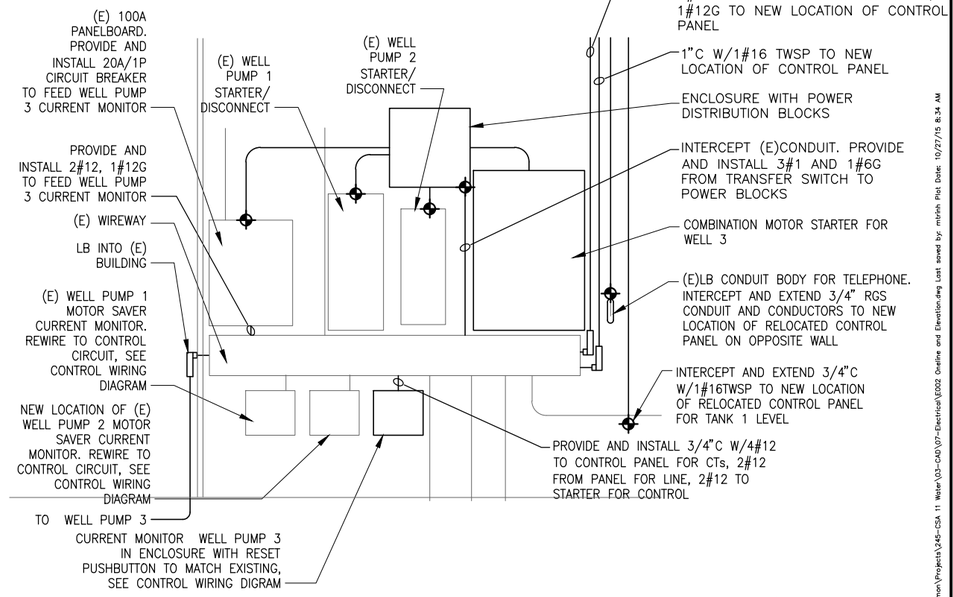
B



(E) ELECTRICAL WALL ELEVATION DEMOLITION

SCALE: NONE (FADED ITEMS ARE EXISTING)

C



(E) ELECTRICAL WALL ELEVATION MODIFICATIONS

SCALE: NONE (FADED ITEMS ARE EXISTING)

D

APPROVED DATE:	REGISTERED PROFESSIONAL ENGINEER Sandy L. Schuler No. E15453 Exp 6-30-2017 ELECTRICAL STATE OF CALIFORNIA
SANDY SCHULER, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # E15453 / EXPIRES 06-30-2017	

COUNTY OF SAN MATEO PUBLIC WORKS

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		CHECKED BY: CML		DATE: OCT 2015
		DRAWN BY: SLS	CSA 11 WATER SUPPLY PROJECT	FILE NO.: 1/4907
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063	

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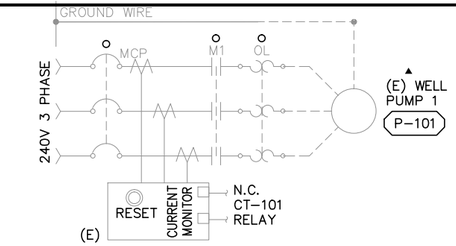
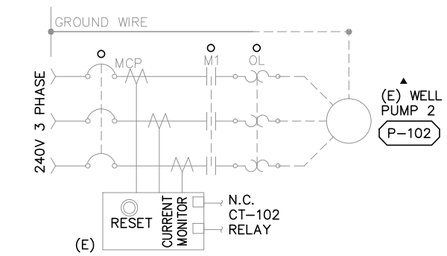
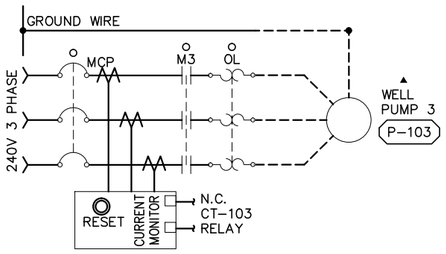
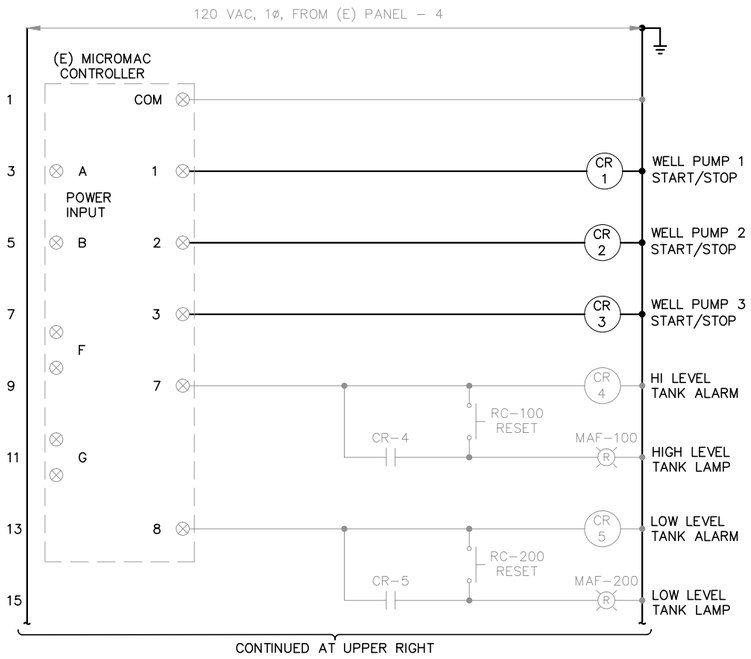
E02
SHEET 13 OF 18

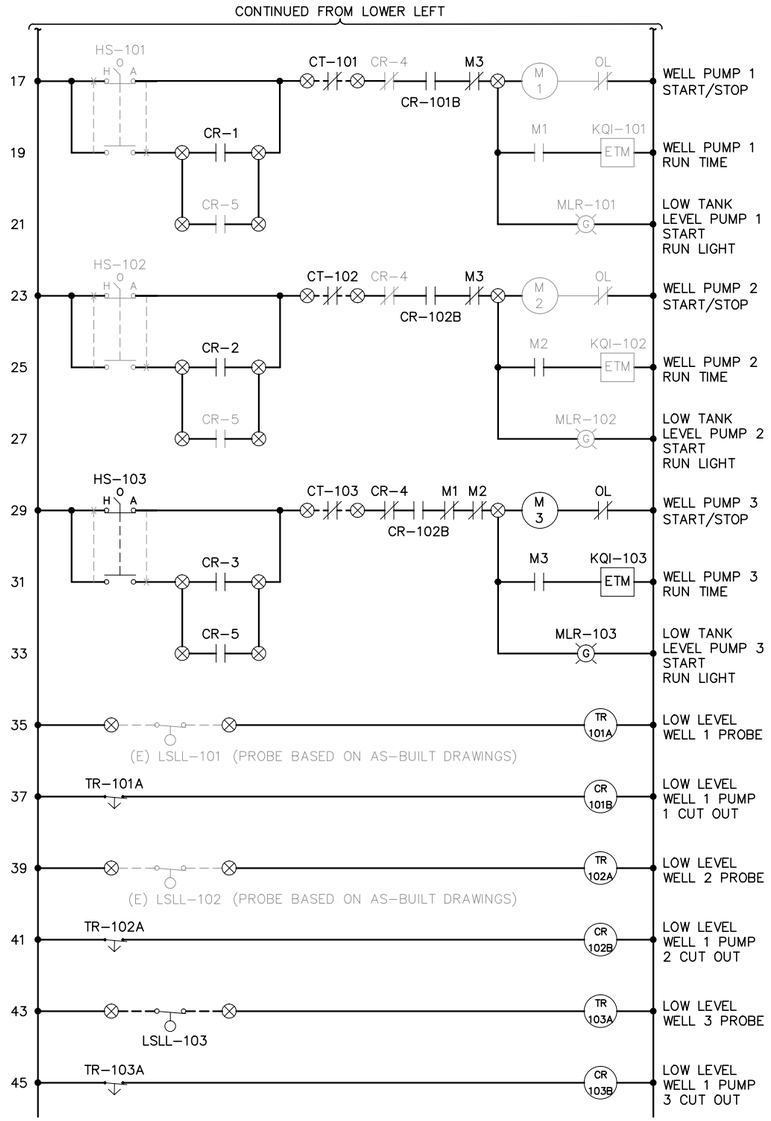
S:\Common\Projects\245-CSA 11 Water\03-CAD\07-Electrical\E002 Oneline and Elevation.dwg Last saved by: mirvin Plot Date: 10/27/15 8:34 AM











CONTROL WIRING DIAGRAM MODIFICATIONS

A

SCALE: NONE (FADED ITEMS ARE EXISTING)

(E) CONTROL PANEL ELEVATION MODIFICATIONS

B

SCALE: NONE

APPROVED:

DATE: _____

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
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REGISTERED PROFESSIONAL ENGINEER
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C 48056
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Sandy L. Schuler
No. E15453
Exp. 6-30-2017
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STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

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		DESIGNED BY: SLS	CONTROL PANEL MODIFICATIONS
		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT
		DRAWN BY: SLS	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY
			555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

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FILE NO.: 1/4907

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E03
SHEET 14 OF 18

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REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
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STATE OF CALIFORNIA

SYMBOLS LIST

SYMBOL	DESCRIPTION
⏚	GROUND
X	SHEET NOTE TAG
XXX	FIELD MOUNTED INSTRUMENT
XXX / XXX	FACE MOUNTED INSTRUMENT ON LOCAL PANEL, OPERATOR ACCESSIBLE
XXX / XXX	INSTRUMENT MOUNTED IN LOCAL PANEL, OPERATOR INACCESSIBLE
XXX / XXX	FACE MOUNTED INSTRUMENT ON FIELD PANEL, OPERATOR ACCESSIBLE
XXX / XXX	INSTRUMENT MOUNTED IN FIELD PANEL, OPERATOR INACCESSIBLE
	OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES – REFERENCE ELEMENTARY DWG. #
XXX / XXX	LAMP INDICATION (STATUS OR ALARM)
ANN / DI	ANNUNCIATOR WINDOW
XX / X	COMMUNICATIONS POINT
XXX / XX *	PLC/RTU OR COMPUTER FUNCTION
XXX / XX	PLC/RTU OR COMPUTER FUNCTION
XXX / XX	PLC/RTU OR COMPUTER PERFORMING INTERNAL OPERATION
FY *	INSTRUMENT PANEL MOUNTED WITH COMPUTING, CONVERTING, OR INTERFACE FUNCTION

SYMBOL	DESCRIPTION
	EXISTING ELECTRIC SIGNAL
	ELECTRICAL SIGNAL
	ELECTRIC POWER/CONTROL
	VENDOR CABLES
# #	PNEUMATIC SIGNAL
x x	CAPILLARY TUBING (FILLED SYSTEM)
L L	HYDRAULIC SIGNAL
	SONIC OR ELECTROMAGNETIC SIGNAL
	LOGIC OR DATA SIGNAL
	MAIN PROCESS LINE
	SECONDARY PROCESS LINE
	AUXILIARY PROCESS LINE
	DIRECTION OF FLOW
	MANUFACTURER'S PRE-WIRING
ES / AS	ELECTRIC SUPPLY OR AIR SUPPLY
M	MOTOR
	PUMPS
SV	SOLENOID VALVE
	AUDIBLE ALARM (BUZZER OR HORN)
D	DRAIN
12	PAGE THAT LINE IS CONTINUED ON
	BLIND FLANGED END
	CAPPED END
M	MAGNETIC FLOW METER
	TURBINE FLOW METER
	BRAIDED HOSE

SYMBOL	DESCRIPTION
	GATE VALVE
	PLUG VALVE
	PLUG VALVE, (NORMALLY CLOSED)
	BALL VALVE
	BALL VALVE (NORMALLY CLOSED)
	BALL CHECK VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	SLIDE GATE
	DIAPHRAGM SEAL
	PRESSURE REDUCING VALVE
DI	TWO BODY VACUUM AND AIR RELIEF VALVE
	AIR RELIEF VALVE
	WYE STRAINER
	UNION
	VACUUM RELIEF VALVE
	PRESSURE RELIEF VALVE
	REDUCER
	FLEXIBLE COUPLING
	FLEXIBLE COUPLING

P & I DIAGRAM INSTRUMENT FUNCTIONAL IDENTIFICATION

CODE LETTER	FIRST LETTER(S)		SUCCEEDING LETTER(S)		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		AUTO/LAG
B	BURNER FLAME				
C	CHLORINE			CONTROL	CLOSE
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		ELEMENT, SENSOR		LEAD
F	FLOW	RATIO	FUEL		FAILURE
G	GAGING		VIEWING DEVICE		
H	HAND				HIGH/HAND
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		PILOT LIGHT		LOW/LOCAL
M	MOISTURE/MOTOR	MOMENTARY	MOTOR		MIDDLE/MANUAL
N	STATUS				
O	OPERATOR		ORIFICE		OPEN/OVERLOAD
P	PRESSURE		POINT		
Q	EVENT	TOTALIZE	TOTAL		
R	RESET		RECORD		RUNNING/REMOTE
S	SPEED	SAFETY		SWITCH	STOP/SPEED
T	TEMPERATURE		TEST	TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION		
V	VIBRATION			VALVE	
W	FORCE, WEIGHT		WELL		
X	TELEMETRY INTERFACE				
Y	COMPUTER INTERFACE			COMPUTE/RELAY/ CONVERTER	
Z	POSITION			ACTUATE	POSITION

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REGISTERED PROFESSIONAL ENGINEER
Sandy L. Schuler
No. E15453
Exp. 6-30-2017
ELECTRICAL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: SLS
CHECKED BY: CML
DRAWN BY: SLS

INSTRUMENTATION LEGEND

CSA 11 WATER SUPPLY PROJECT

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: OCT 2015
FILE NO.: 1/4907

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101
SHEET 15 OF 18

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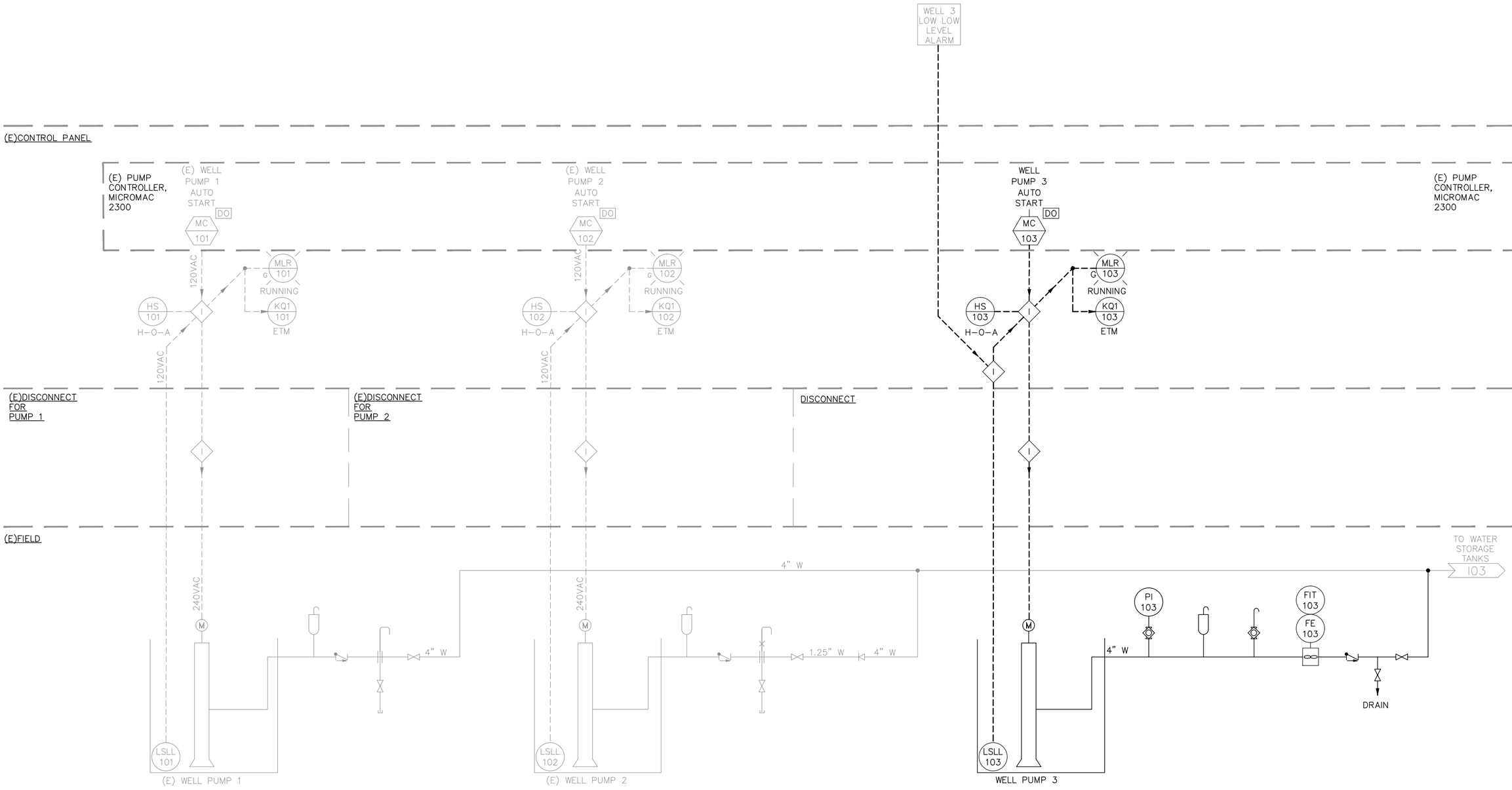

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Exp 6-30-2017
ELECTRICAL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

		DESIGNED BY: SLS	PROCESS AND INSTRUMENTATION - 2
		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT
		DRAWN BY: SLS	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY
REVISION	DATE		555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

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DATE: OCT 2015
FILE NO.: 1/4907

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I02
SHEET 16 OF 18

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STATE OF CALIFORNIA

AUTODIALER

TANK LEVEL LOW ALARM

TANK LEVEL HIGH ALARM

POWER FAIL

TANK LEVEL

4-20mADC

(E)CONTROL PANEL

(E)CONTROL PANEL

(E) PUMP CONTROLLER, MICROMAC 2300

PUMP 1 START STOP

PUMP 2 START STOP

LOW LEVEL ALARM

HIGH LEVEL ALARM

120VAC

AO

AI

DO

DO

MS 100A

MS 100B

LAL 100L

LAH 100H

WATER TANK 2 LEVEL

AI

L 200

I

I/I

LI 200

4-20mADC

4-20mADC

(E)FIELD

(E) BUILDING

FIT 101

FE 101

SAMPLE TAP

FROM WELL PUMPS 102

SAMPLE TAP

8" W

SAMPLE TAP

10" W

(E) 140,000 GAL WATER TANK 1

LT 100

LE 100

10" OF

8" D

DRAIN

140,000 GAL TANK 2

LT 200

LE 200

10" OF

6" D

DRAIN

6" W

TO DISTRIBUTION SYSTEM

4" W

8" W

12" W

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		CHECKED BY: CML	CSA 11 WATER SUPPLY PROJECT
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		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

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SHEET 17 OF 18

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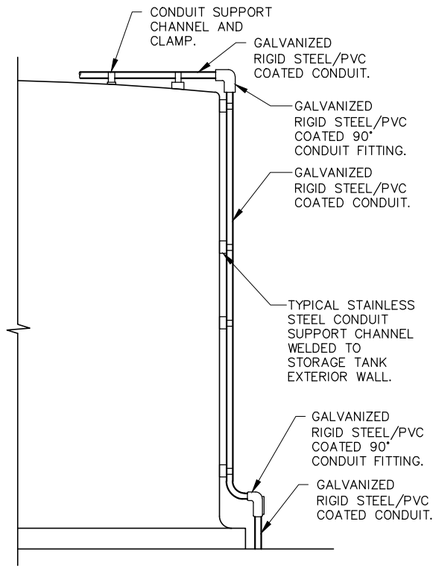
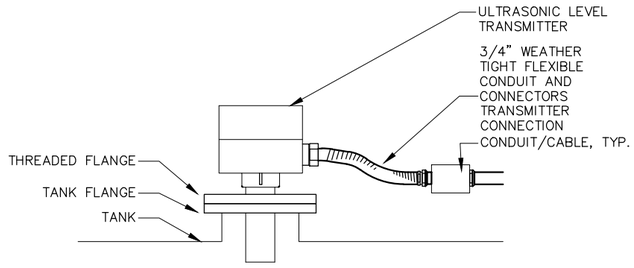


CONDUIT STUB-UP TO WATER STORAGE TANK INSTALLATION DETAIL

1

SCALE: NONE



LEVEL TRANSMITTER INSTALLATION DETAIL

2

SCALE: NONE

APPROVED DATE:	
SANDY SCHULER, P.E., ENGINEERING CONSULTANT	
HYDROSCIENCE ENGINEERS, INC.	
R.C.E. # E15453 / EXPIRES 06-30-2017	

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Sandy L. Schuler
No. E15453
Exp 6-30-2017
ELECTRICAL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

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		CHECKED BY: CML		DATE: OCT 2015
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		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY		555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063
REVISION	DATE			

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104
SHEET 18 OF 18

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Appendix B. Mitigation Monitoring and Reporting Program (MMRP)

Appendix B
MITIGATION MONITORING AND REPORTING PROGRAM

Introduction

This Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the Initial Study/Mitigated Negative Declaration for the Pescadero Water Supply and Sustainability Project. All IS/MND sections and impacts which include mitigation measures are listed below, along with specific implementation procedures to ensure compliance. The MMRP describes monitoring actions, monitoring responsibilities, and monitoring schedules for each implementation procedure.

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	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
Biological Resources					
BIO-1	***California red-legged Frog Protection Measures.*** The County will implement the following measures to avoid and minimize impacts on California red-legged frogs: ▪ Prior to Project implementation, the County shall submit to the USFWS and CDFW for its review the qualifications of proposed wildlife biologist(s) who will perform pre-activity surveys and on-site monitoring. ▪ A USFWS- and CDFW-approved biologist (qualified biologist) will be present during initial ground-disturbing activities (i.e., clearing and grubbing) to monitor for individual California red-legged frogs. The biologist will also be present during any other Project activities that, in the biologist's opinion, could potentially result in take. The biologist(s) shall have the authority to stop any work that may result in the take of this species. The on-site biologist will be the contact for any employee or contractor who might inadvertently kill or injure a red-legged frog or anyone who finds a dead, injured, or entrapped California red-legged frog. ▪ No more than twenty-four (24) hours prior to the date of initial ground disturbance, a pre-activity survey for the California red-legged frog will be conducted by a qualified biologist at the Project site. The survey will consist of walking the Project limits and within the Project site to ascertain the possible presence of the species. The qualified biologist will investigate all potential areas that could be used by the California red-legged frog for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as those of California ground squirrels (Spermophilus beecheyi) or gophers (Thomomys bottae). If any adults, subadults, or juveniles are found, all work will cease and the qualified biologist will contact the USFWS and CDFW	1. Confirm that protection measures are incorporated in the Project plans and specifications. 2. Submit qualifications of qualified biologists to USFWS and CDFW 30 days before project construction. 3. Under the supervision of the qualified biologist, install silt fence around the entire work area prior to pre-activity survey. 4. Implement pre-activity survey at least 24-hours prior to ground-disturbing work. 5. Conduct employee education training for construction employees. 6. Confirm that USFWS and CDFW are notified in the event that California red-legged frog is found on site.	1. San Mateo County 2. San Mateo County 3. San Mateo County 4. San Mateo County 5. San Mateo County 6. San Mateo County	1. During development of plans and specifications 2. Prior to start of construction 3. Prior to pre-activity survey 4. During pre-activity survey 5. Prior to start of construction 6. During construction	

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
	immediately for guidance. ▪ The qualified biologist will conduct employee education training for employees working on earthmoving and/or other Project activities. Personnel will be required to attend the presentation which will describe the California red-legged-frog, avoidance, minimization, and conservation measures, legal protection of the animal, and other related issues. All attendees will sign an attendance sheet along with their printed name, company or agency, email address, and telephone number. ▪ Project-related vehicles will observe a 15 mile per hour speed limit while in the Project work area. ▪ The County will minimize adverse impacts to the California red-legged frog by limiting, to the maximum extent possible, the number of access routes, equipment staging, storage, parking, and stockpile areas. Prior to the date of initial ground disturbance at the Project site, equipment staging areas, site access routes, and transportation equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed will be identified, surveyed by the qualified biologist, and clearly marked with 5-ft tall bright orange plastic fencing or other highly visible material. The fencing will be inspected by the qualified biologist and maintained daily until the last day that Project equipment is at the Project site. ▪ Ground-disturbing activities will be avoided between November 1 and March 31 because that is the time period when California red-legged frogs are most likely to be moving through upland areas. ▪ To minimize harassment, injury death, and harm in the form of temporary habitat disturbances, all Project-related vehicle traffic will be restricted to established roads and access areas, equipment staging, storage, parking, and stockpile areas. These areas will be included in pre-activity				

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
	surveys and, to the maximum extent possible, established in locations disturbed by previous activities to prevent further adverse impacts. Project-related vehicles will observe a 15 mile per hour speed limit while in the Project work area. Off-road traffic outside of designated and fenced Project work areas will be prohibited. ▪ When a California red-legged frog is encountered in the Project area, all activities which have the potential to result in the harassment, injury, or death of the individual will be immediately halted. The qualified biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse impacts to the animal. ▪ The County will not apply insecticides or herbicides at the Project site during Project implementation or long-term operational maintenance where there is the potential for these chemical agents to enter creeks, streams, waterbodies, or uplands that contain potential habitat for the California red-legged frog. ▪ California red-legged frog may be attracted to structures that provide cavities such as pipes; therefore, all pipes, culverts, or similar structures that are stored at the site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the Project foreman/manager before the pipe is buried, capped, or otherwise used or moved. If a California red-legged frog is discovered inside a pipe, the biologist (or a member of the Project crew, if the biologist is not on-site) will watch the individual until it has moved out of the Project work area. ▪ To the maximum extent practicable, no Project activities will occur during rain events or within 24-hours following a rain event. Prior to Project activities resuming, a qualified biologist will inspect the Project area and all equipment/materials for the presence of California red-				

Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
legged frogs. The animals will be allowed to move away from the Project site of their own volition. ▪ To the maximum extent practicable, night-time Project activities will be minimized or avoided by the County. Because dusk and dawn are often the times when the California red-legged frog is most actively moving and foraging, to the maximum extent practicable, earthmoving and other Project activities will cease no less than 30 minutes before sunset and will not begin again prior to no less than 30 minutes after sunrise. Artificial lighting at a Project site will be prohibited during the hours of darkness. ▪ Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form will not be used at the Project site because California red-legged frogs can become entangled and trapped in them. Any such material found on site will be immediately removed by the qualified biologist, Project personnel, or County contractors. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials will not be used. ▪ Prior to pre-activity surveys, the Project shall enclose the construction and staging areas with a 3-foot-high silt fence or similar material, of which approximately 6 inches is buried underground, that will remain in place during well and tank construction and site restoration in order to prevent red-legged frogs from entering the impact area. Escape ramps, funnels, or other features that allow animals to exit the construction area, but which will prohibit the entry of such animals, shall be provided in the exclusion fencing. A qualified biologist shall conduct a pre-activity survey of the fence installation area immediately prior to (i.e., the day of) the commencement of installation and shall be on-hand to monitor fence installation. Undercut fences and split, torn, slumping, or weathered fabric shall be repaired by the contractor immediately. Dirt and materials				

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
	shall not be allowed to accumulate more than ½ the height of the fence. The exclusion fencing shall be inspected daily by Project personnel and maintained for the duration of Project implementation.				
BIO-2	***San Francisco Garter Snake Protection Measures.*** The County will implement the following measures to avoid and minimize impacts on San Francisco garter snakes: ▪ Prior to Project implementation, the County shall submit to the USFWS and CDFW for its review the qualifications of proposed wildlife biologist(s) who will perform pre-activity surveys and on-site monitoring. ▪ A qualified biologist will be present during initial ground-disturbing activities (i.e., clearing and grubbing) to monitor for individual garter snakes. The biologist will also be present during any other Project activities that, in the biologist's opinion, could potentially result in take. The biologist(s) shall have the authority to stop any work that may result in the take of this species. The on-site biologist will be the contact for any employee or contractor who might inadvertently kill or injure a garter snake or anyone who finds a dead, injured, or entrapped San Francisco garter snake. ▪ Immediately prior to the initiation of Project activities on any day in which activities are performed that have potential for take of the San Francisco garter snake, a qualified biologist will conduct daytime surveys throughout the Project site. If a San Francisco garter snake is observed within the Project work area, either during this survey or at any time, Project activities that could potentially harm the individual shall be stopped immediately. The biologist (or a member of the Project crew, if the biologist is not on-site) will watch the individual until it has moved out of the work area. No individuals of this species will be relocated without explicit USFWS approval; however, if the snake will	1. Confirm that avoidance and minimization measures are included in plans and specifications. 2. Confirm that silt fence is installed (consistent with Mitigation Measure BIO-1) prior to pre-activity survey. 3. Confirm that San Francisco garter snake surveys are performed, as needed.	1. San Mateo County 2. San Mateo County 3. San Mateo County	1. During development of plans and specifications 2. Prior to start of pre-activity surveys 3. During construction	

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
	not leave the area on its own, the biologist will contact the USFWS to determine if moving any of the individuals is appropriate. If the USFWS approves moving animals, the biologist and USFWS will identify a suitable relocation site, and the County will ensure the qualified biologist is given sufficient time to move the animals from the work site before ground disturbance is initiated. ▪ Project-related vehicles will observe a 15 mile per hour speed limit while in the Project work area. ▪ San Francisco garter snakes may be attracted to structures that provide cavities such as pipes; therefore, all pipes, culverts, or similar structures that are stored at the site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the Project foreman/manager before the pipe is buried, capped, or otherwise used or moved. If a San Francisco garter snake is discovered inside a pipe, the biologist (or a member of the Project crew, if the biologist is not on-site) will watch the individual until it has moved out of the Project work area. ▪ Prior to pre-activity surveys and consistent with exclusion fencing for California red-legged frog, the Project shall enclose the construction and staging areas and proposed mitigation site with a 3-foot-high silt fence or similar material, of which approximately 6 inches is buried underground, that will remain in place during Project implementation in order to prevent San Francisco garter snakes from entering the construction and staging areas. Escape ramps, funnels, or other features that allow animals to exit the construction area, but which will prohibit the entry of such animals, shall be provided in the exclusion fencing. A qualified biologist shall conduct a pre-activity survey of the fence installation area immediately prior to (i.e., the day of) the commencement of installation and shall be on-hand to monitor fence installation. The vegetation on				

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
	the non-construction side of the fence shall be maintained at a height of 4 inches or less to prevent snakes from maneuvering over the fence. Undercut fences and split, torn, slumping, or weathered fabric shall be repaired by the contractor immediately. Dirt and materials shall not be allowed to accumulate more than ½ the height of the fence. The exclusion fencing shall be inspected daily by Project personnel and maintained for the duration of Project implementation.				
BIO-3a	***Conduct Pre-construction Survey for Dusky-footed Woodrat Houses.*** No less than 7 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, a qualified biologist will survey the work areas scheduled for construction. The survey shall cover the access roads, work area, and a 50-foot buffer around the work area. Any dusky-footed woodrat houses found shall be marked in the field with flagging tape and their locations will be recorded with GPS. If a dusky-footed woodrat house is identified in a work area, Mitigation Measure BIO-3b will be implemented by the County.	1. Confirm that dusky-footed woodrat survey is conducted for work area, including the 50-foot buffer in the upstream and downstream directions. 2. If found, confirm that dusk-footed woodrat houses are marked with flagging tape and recorded with GPS.	1. San Mateo County 2. San Mateo County	1. Prior to start of construction 2. During pre-construction survey	
BIO-3b	***Avoid or Minimize Disturbance to Dusky-footed Woodrat Houses.*** If a dusky-footed woodrat house is identified in a work area, the County shall attempt to preserve the house and maintain an intact dispersal corridor between the house and undisturbed habitat. An adequate dispersal corridor would be considered to be a minimum of 50 feet wide and have greater than 70% vegetative cover. Even if such a corridor is infeasible, the County will avoid physical disturbance of the nest.	1. Confirm that avoidance and minimization measure is incorporated in design specifications and/or plans. 2. Confirm appropriate implementation of the measure to preserve the house and habitat.	1. San Mateo County 2. San Mateo County	1. During development of plans and specifications 2. Prior to start of construction	
BIO-4	***Measures to Protect White-tailed Kite and Other Nesting Migratory Birds.*** For activities occurring between February 15 and August 31, a qualified biologist will survey the Project area for nesting birds. This survey will occur no less than 5 days prior to starting work. If a lapse in Project-related work of 2 weeks or longer occurs, another focused survey will be	1. Confirm that nesting bird survey is complete at least 5 days prior to the start of construction. 2. Confirm that no-work buffers are established	1. San Mateo County 2. San Mateo County	1. 5 days prior to start of construction 2. Prior to construction	

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
	conducted before Project work can be reinitiated. If nesting birds are found, a no-work buffer will be established around the nest and maintained until the young have fledged (generally 300 feet for raptors and 100 feet for other nesting birds). A qualified biologist will identify an appropriate buffer based on a site specific-evaluation. Work will not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival.	through consultation with CDFW, if nesting birds are found during survey.			
BIO-5	***Restore Wetland Habitat On-site*** The County will mitigate for unavoidable impacts on San Mateo County Local Coastal Program jurisdictional wetland habitat due to the proposed Project by creating wetland habitat within upland ruderal habitat adjacent to the Project site. The County anticipates 0.03 acre of permanent impacts to wetland habitat and thus, shall restore 0.10 acre of wetland habitat (3:1 ratio). To the extent feasible, wetland habitat restoration will occur concurrent with implementation if the Project. Wetland vegetation to be installed at the mitigation site will include native faculatative wetland and obligate wetland species, such as spreading rush, common rush, and Harford's sedge. Prior to the start of Project construction, the County will develop and implement a Habitat Mitigation and Monitoring Plan (HMMP) for creation of wetland habitat. The Habitat Mitigation and Monitoring Plan will be prepared by a qualified restoration ecologist and will provide the following: ▪ A summary of wetland impacts and the proposed mitigation ▪ Goals of the mitigation to achieve no net loss of habitat functions and values ▪ The location of mitigation site(s) and description of existing site conditions ▪ Mitigation design including: o Existing and proposed site hydrology, geomorphology, and geotechnical stability, if applicable	1. Confirm that avoidance and minimization measures are included in construction plans and specifications. 2. Confirm completion of the HMMP. 3. Confirm implementation of the HMMP.	1. San Mateo County 2. San Mateo County 3. San Mateo County	1. During development of plans and specifications 2. Prior to start of construction 3. Prior to the end of construction.	

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
	o Grading plan if appropriate, including bank stabilization or other site stabilization features o Soil amendments and other site preparation elements, as appropriate o Planting plan and species list o Irrigation and maintenance plan o Restoration schedule ▪ Monitoring plan (including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc.) ▪ A contingency plan for mitigation elements that do not meet performance or final success criteria within 3 years; this plan will include specific triggers for remediation if performance criteria are not being met. The County will implement the HMMP concurrently with implementation of the Proposed Project, such that mitigation elements are installed at Project completion. The success criteria for revegetation shall be 75% survival at 3 years. Remedial actions, such as replanting, will be implemented according to the HMMP contingency plan to ensure that the success criteria are met.				
Cultural Resources					
CUL-1	***Unexpected Discovery of Cultural Resources.*** Not all cultural resources are visible on the ground surface. Prior to the start of construction or ground-disturbing activities, the County shall ensure all field personnel are educated of the possibility of encountering buried prehistoric or historic cultural resources. Personnel will be trained that upon discovery of buried cultural resources, work within 50 feet of the find must cease and the County will contact a qualified archaeologist immediately to evaluate the find. Once the find has been identified and found eligible for listing on the National Register of Historic Places or the California Register of Historical Resources, plans for treatment, evaluation, and mitigation of impacts to the find shall be	1. Confirm that that cultural resource studies are completed as needed. 2. Confirm that any unanticipated discoveries are evaluated and addressed appropriately.	1. San Mateo County 2. San Mateo County	1. During development of plans and specifications 2. During construction	

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Responsibility	Monitoring Schedule	Completion Date and Initials
	developed and implemented according to the qualified archaeologist's recommendations. This measure will ensure that prehistoric and historic cultural resources are appropriately protected. Prehistoric or historic cultural materials that may be encountered include the following: unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains.				
CUL-2	***Inadvertent Discovery of Human Remains***. If human remains are accidentally discovered during project construction activities, the County will implement the requirements of California Health and Human Safety Code section 7050.5. Potentially damaging excavation will cease in the area of the remains, with a minimum radius of 50 feet, and the San Mateo County Coroner will be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code section 7050.5[b]). If the Coroner determines the remains are those of a Native American, he or she will contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code section 7050[c]). Pursuant to the provisions of PRC section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods.	1. Confirm that measure is included in plans and specifications. 2. Confirm that any discoveries of human remains are evaluated and addressed appropriately.	1. San Mateo County 2. San Mateo County	1. During preparation of plans and specifications 2. During construction	

Appendix C. Air Quality and Greenhouse Gas Emissions Estimates

Pescadero Water Supply and Sustainability

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Selected a user defined category with size metric of 1.

Construction Phase - Assumed to start in July 2016 and last 8 weeks or 40 days.

Off-road Equipment -

Off-road Equipment - Assumed there was 1 backhoe and 1 loader.

Off-road Equipment - Assumed there was 1 crane, 1 forklift, and 2 backhoes/loaders.

Grading - Assumbed excavation of 300 cubic yards and import of 300 cubic yards of engineered fill.

Trips and VMT - Adjusted material hauling to be 120 (60 round trips). Adjusted worker trip length to be 25 miles.

Land Use Change - Assumed conversion of 0.03 acre of wetland to impermeable surface.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstructionPhase	NumDays	0.00	26.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	PhaseEndDate	1/5/2016	7/6/2016
tblConstructionPhase	PhaseStartDate	1/1/2016	7/4/2016
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	AcresOfGrading	1.50	0.00
tblGrading	MaterialExported	0.00	300.00
tblGrading	MaterialImported	0.00	300.00
tblLandUseChange	CO2peracre	0.00	4.31
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	75.00	120.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0230	0.2265	0.1606	2.6000e-004	4.9700e-003	0.0142	0.0192	1.2800e-003	0.0131	0.0144	0.0000	23.6351	23.6351	5.1100e-003	0.0000	23.7423
Total	**0.0230**	**0.2265**	**0.1606**	**2.6000e-004**	**4.9700e-003**	**0.0142**	**0.0192**	**1.2800e-003**	**0.0131**	**0.0144**	**0.0000**	**23.6351**	**23.6351**	**5.1100e-003**	**0.0000**	**23.7423**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0230	0.2265	0.1606	2.6000e-004	4.9700e-003	0.0142	0.0192	1.2800e-003	0.0131	0.0144	0.0000	23.6351	23.6351	5.1100e-003	0.0000	23.7423
Total	**0.0230**	**0.2265**	**0.1606**	**2.6000e-004**	**4.9700e-003**	**0.0142**	**0.0192**	**1.2800e-003**	**0.0131**	**0.0144**	**0.0000**	**23.6351**	**23.6351**	**5.1100e-003**	**0.0000**	**23.7423**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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

2.3 Vegetation

Vegetation

	CO2e
Category	MT
Vegetation Land Change	-0.1293
Total	**-0.1293**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	12/31/2015	5	0	
2	Paving	Paving	1/1/2016	12/31/2015	5	0	
3	Architectural Coating	Architectural Coating	1/1/2016	12/31/2015	5	0	
4	Site Preparation	Site Preparation	7/4/2016	7/6/2016	5	3	
5	Grading	Grading	7/7/2016	7/21/2016	5	11	
6	Building Construction	Building Construction	7/22/2016	8/26/2016	5	26	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Rubber Tired Dozers	0	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	10.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	10.00	0.00	120.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	10.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.5 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0400e-003	0.0205	0.0110	1.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003	0.0000	1.3242	1.3242	4.0000e-004	0.0000	1.3325
Total	**2.0400e-003**	**0.0205**	**0.0110**	**1.0000e-005**	**0.0000**	**1.2500e-003**	**1.2500e-003**	**0.0000**	**1.1500e-003**	**1.1500e-003**	**0.0000**	**1.3242**	**1.3242**	**4.0000e-004**	**0.0000**	**1.3325**

3.5 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	1.6000e-004	1.4800e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2458	0.2458	1.0000e-005	0.0000	0.2461
Total	**8.0000e-005**	**1.6000e-004**	**1.4800e-003**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2458**	**0.2458**	**1.0000e-005**	**0.0000**	**0.2461**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0400e-003	0.0205	0.0110	1.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003	0.0000	1.3242	1.3242	4.0000e-004	0.0000	1.3325
Total	**2.0400e-003**	**0.0205**	**0.0110**	**1.0000e-005**	**0.0000**	**1.2500e-003**	**1.2500e-003**	**0.0000**	**1.1500e-003**	**1.1500e-003**	**0.0000**	**1.3242**	**1.3242**	**4.0000e-004**	**0.0000**	**1.3325**

3.5 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	1.6000e-004	1.4800e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2458	0.2458	1.0000e-005	0.0000	0.2461
Total	**8.0000e-005**	**1.6000e-004**	**1.4800e-003**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2458**	**0.2458**	**1.0000e-005**	**0.0000**	**0.2461**

3.6 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-004	0.0000	3.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8100e-003	0.0269	0.0199	3.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	2.4225	2.4225	7.3000e-004	0.0000	2.4378
Total	**2.8100e-003**	**0.0269**	**0.0199**	**3.0000e-005**	**3.0000e-004**	**2.0700e-003**	**2.3700e-003**	**3.0000e-005**	**1.9000e-003**	**1.9300e-003**	**0.0000**	**2.4225**	**2.4225**	**7.3000e-004**	**0.0000**	**2.4378**

3.6 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4200e-003	0.0180	0.0155	5.0000e-005	1.0100e-003	2.3000e-004	1.2400e-003	2.8000e-004	2.1000e-004	4.9000e-004	0.0000	4.1161	4.1161	3.0000e-005	0.0000	4.1168
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	5.8000e-004	5.4300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.9012	0.9012	5.0000e-005	0.0000	0.9022
Total	**1.7000e-003**	**0.0185**	**0.0209**	**6.0000e-005**	**2.0200e-003**	**2.4000e-004**	**2.2500e-003**	**5.5000e-004**	**2.2000e-004**	**7.6000e-004**	**0.0000**	**5.0173**	**5.0173**	**8.0000e-005**	**0.0000**	**5.0190**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-004	0.0000	3.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8100e-003	0.0269	0.0199	3.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	2.4225	2.4225	7.3000e-004	0.0000	2.4378
Total	**2.8100e-003**	**0.0269**	**0.0199**	**3.0000e-005**	**3.0000e-004**	**2.0700e-003**	**2.3700e-003**	**3.0000e-005**	**1.9000e-003**	**1.9300e-003**	**0.0000**	**2.4225**	**2.4225**	**7.3000e-004**	**0.0000**	**2.4378**

3.6 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4200e-003	0.0180	0.0155	5.0000e-005	1.0100e-003	2.3000e-004	1.2400e-003	2.8000e-004	2.1000e-004	4.9000e-004	0.0000	4.1161	4.1161	3.0000e-005	0.0000	4.1168
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	5.8000e-004	5.4300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.9012	0.9012	5.0000e-005	0.0000	0.9022
Total	**1.7000e-003**	**0.0185**	**0.0209**	**6.0000e-005**	**2.0200e-003**	**2.4000e-004**	**2.2500e-003**	**5.5000e-004**	**2.2000e-004**	**7.6000e-004**	**0.0000**	**5.0173**	**5.0173**	**8.0000e-005**	**0.0000**	**5.0190**

3.7 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0158	0.1591	0.0944	1.3000e-004		0.0106	0.0106		9.7700e-003	9.7700e-003	0.0000	12.4953	12.4953	3.7700e-003	0.0000	12.5744
Total	**0.0158**	**0.1591**	**0.0944**	**1.3000e-004**		**0.0106**	**0.0106**		**9.7700e-003**	**9.7700e-003**	**0.0000**	**12.4953**	**12.4953**	**3.7700e-003**	**0.0000**	**12.5744**

3.7 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	1.3700e-003	0.0128	3.0000e-005	2.3800e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.1301	2.1301	1.1000e-004	0.0000	2.1325
Total	**6.6000e-004**	**1.3700e-003**	**0.0128**	**3.0000e-005**	**2.3800e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**2.1301**	**2.1301**	**1.1000e-004**	**0.0000**	**2.1325**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0158	0.1591	0.0944	1.3000e-004		0.0106	0.0106		9.7700e-003	9.7700e-003	0.0000	12.4953	12.4953	3.7700e-003	0.0000	12.5744
Total	**0.0158**	**0.1591**	**0.0944**	**1.3000e-004**		**0.0106**	**0.0106**		**9.7700e-003**	**9.7700e-003**	**0.0000**	**12.4953**	**12.4953**	**3.7700e-003**	**0.0000**	**12.5744**

3.7 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	1.3700e-003	0.0128	3.0000e-005	2.3800e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.1301	2.1301	1.1000e-004	0.0000	2.1325
Total	**6.6000e-004**	**1.3700e-003**	**0.0128**	**3.0000e-005**	**2.3800e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**2.1301**	**2.1301**	**1.1000e-004**	**0.0000**	**2.1325**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546434	0.062864	0.174629	0.123506	0.034170	0.004889	0.015456	0.023695	0.002073	0.003288	0.006639	0.000690	0.001668

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-0.1293	0.0000	0.0000	-0.1293

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Wetlands	0.03 / 0	-0.1293	0.0000	0.0000	-0.1293
Total		**-0.1293**	**0.0000**	**0.0000**	**-0.1293**

Pescadero Water Supply and Sustainability

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Selected a user defined category with size metric of 1.

Construction Phase - Assumed to start in July 2016 and last 8 weeks or 40 days.

Off-road Equipment -

Off-road Equipment - Assumed there was 1 backhoe and 1 loader.

Off-road Equipment - Assumed there was 1 crane, 1 forklift, and 2 backhoes/loaders.

Grading - Assumbed excavation of 300 cubic yards and import of 300 cubic yards of engineered fill.

Trips and VMT - Adjusted material hauling to be 120 (60 round trips). Adjusted worker trip length to be 25 miles.

Land Use Change - Assumed conversion of 0.03 acre of wetland to impermeable surface.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstructionPhase	NumDays	0.00	26.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	PhaseEndDate	1/5/2016	7/6/2016
tblConstructionPhase	PhaseStartDate	1/1/2016	7/4/2016
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	AcresOfGrading	1.50	0.00
tblGrading	MaterialExported	0.00	300.00
tblGrading	MaterialImported	0.00	300.00
tblLandUseChange	CO2peracre	0.00	4.31
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	75.00	120.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	1.4131	13.7279	8.4245	0.0152	0.4345	0.8352	1.0252	0.1086	0.7684	0.8188	0.0000	1,505.4126	1,505.4126	0.3293	0.0000	1,512.3274
Total	**1.4131**	**13.7279**	**8.4245**	**0.0152**	**0.4345**	**0.8352**	**1.0252**	**0.1086**	**0.7684**	**0.8188**	**0.0000**	**1,505.4126**	**1,505.4126**	**0.3293**	**0.0000**	**1,512.3274**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	1.4131	13.7279	8.4245	0.0152	0.4345	0.8352	1.0252	0.1086	0.7684	0.8188	0.0000	1,505.4126	1,505.4126	0.3293	0.0000	1,512.3274
Total	**1.4131**	**13.7279**	**8.4245**	**0.0152**	**0.4345**	**0.8352**	**1.0252**	**0.1086**	**0.7684**	**0.8188**	**0.0000**	**1,505.4126**	**1,505.4126**	**0.3293**	**0.0000**	**1,512.3274**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	12/31/2015	5	0	
2	Paving	Paving	1/1/2016	12/31/2015	5	0	
3	Architectural Coating	Architectural Coating	1/1/2016	12/31/2015	5	0	
4	Site Preparation	Site Preparation	7/4/2016	7/6/2016	5	3	
5	Grading	Grading	7/7/2016	7/21/2016	5	11	
6	Building Construction	Building Construction	7/22/2016	8/26/2016	5	26	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Rubber Tired Dozers	0	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	10.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	10.00	0.00	120.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	10.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.5 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671		973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**0.0000**	**0.8338**	**0.8338**	**0.0000**	**0.7671**	**0.7671**		**973.0842**	**973.0842**	**0.2935**		**979.2481**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0538	0.0929	1.0844	2.3100e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		194.1351	194.1351	9.6900e-003		194.3386
Total	**0.0538**	**0.0929**	**1.0844**	**2.3100e-003**	**0.1900**	**1.4400e-003**	**0.1915**	**0.0504**	**1.3200e-003**	**0.0517**		**194.1351**	**194.1351**	**9.6900e-003**		**194.3386**

3.5 Site Preparation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671	0.0000	973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**0.0000**	**0.8338**	**0.8338**	**0.0000**	**0.7671**	**0.7671**	**0.0000**	**973.0842**	**973.0842**	**0.2935**		**979.2481**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0538	0.0929	1.0844	2.3100e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		194.1351	194.1351	9.6900e-003		194.3386
Total	**0.0538**	**0.0929**	**1.0844**	**2.3100e-003**	**0.1900**	**1.4400e-003**	**0.1915**	**0.0504**	**1.3200e-003**	**0.0517**		**194.1351**	**194.1351**	**9.6900e-003**		**194.3386**

3.6 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0544	0.0000	0.0544	6.1400e-003	0.0000	6.1400e-003			0.0000			0.0000
Off-Road	0.5109	4.8826	3.6189	4.6700e-003		0.3759	0.3759		0.3459	0.3459		485.5159	485.5159	0.1465		488.5913
Total	**0.5109**	**4.8826**	**3.6189**	**4.6700e-003**	**0.0544**	**0.3759**	**0.4303**	**6.1400e-003**	**0.3459**	**0.3520**		**485.5159**	**485.5159**	**0.1465**		**488.5913**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2355	3.1459	2.3082	8.2000e-003	0.1901	0.0425	0.2325	0.0520	0.0390	0.0911		825.7615	825.7615	6.0900e-003		825.8895
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0538	0.0929	1.0844	2.3100e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		194.1351	194.1351	9.6900e-003		194.3386
Total	**0.2893**	**3.2388**	**3.3927**	**0.0105**	**0.3801**	**0.0439**	**0.4240**	**0.1024**	**0.0404**	**0.1428**		**1,019.8967**	**1,019.8967**	**0.0158**		**1,020.2281**

3.6 Grading - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0544	0.0000	0.0544	6.1400e-003	0.0000	6.1400e-003			0.0000			0.0000
Off-Road	0.5109	4.8826	3.6189	4.6700e-003		0.3759	0.3759		0.3459	0.3459	0.0000	485.5159	485.5159	0.1465		488.5913
Total	**0.5109**	**4.8826**	**3.6189**	**4.6700e-003**	**0.0544**	**0.3759**	**0.4303**	**6.1400e-003**	**0.3459**	**0.3520**	**0.0000**	**485.5159**	**485.5159**	**0.1465**		**488.5913**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2355	3.1459	2.3082	8.2000e-003	0.1901	0.0425	0.2325	0.0520	0.0390	0.0911		825.7615	825.7615	6.0900e-003		825.8895
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0538	0.0929	1.0844	2.3100e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		194.1351	194.1351	9.6900e-003		194.3386
Total	**0.2893**	**3.2388**	**3.3927**	**0.0105**	**0.3801**	**0.0439**	**0.4240**	**0.1024**	**0.0404**	**0.1428**		**1,019.8967**	**1,019.8967**	**0.0158**		**1,020.2281**

3.7 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2114	12.2409	7.2649	0.0102		0.8173	0.8173		0.7519	0.7519		1,059.5134	1,059.5134	0.3196		1,066.2247
Total	**1.2114**	**12.2409**	**7.2649**	**0.0102**		**0.8173**	**0.8173**		**0.7519**	**0.7519**		**1,059.5134**	**1,059.5134**	**0.3196**		**1,066.2247**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0538	0.0929	1.0844	2.3100e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		194.1351	194.1351	9.6900e-003		194.3386
Total	**0.0538**	**0.0929**	**1.0844**	**2.3100e-003**	**0.1900**	**1.4400e-003**	**0.1915**	**0.0504**	**1.3200e-003**	**0.0517**		**194.1351**	**194.1351**	**9.6900e-003**		**194.3386**

3.7 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2114	12.2409	7.2649	0.0102		0.8173	0.8173		0.7519	0.7519	0.0000	1,059.5134	1,059.5134	0.3196		1,066.2247
Total	**1.2114**	**12.2409**	**7.2649**	**0.0102**		**0.8173**	**0.8173**		**0.7519**	**0.7519**	**0.0000**	**1,059.5134**	**1,059.5134**	**0.3196**		**1,066.2247**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0538	0.0929	1.0844	2.3100e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		194.1351	194.1351	9.6900e-003		194.3386
Total	**0.0538**	**0.0929**	**1.0844**	**2.3100e-003**	**0.1900**	**1.4400e-003**	**0.1915**	**0.0504**	**1.3200e-003**	**0.0517**		**194.1351**	**194.1351**	**9.6900e-003**		**194.3386**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546434	0.062864	0.174629	0.123506	0.034170	0.004889	0.015456	0.023695	0.002073	0.003288	0.006639	0.000690	0.001668

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Pescadero Water Supply and Sustainability

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Selected a user defined category with size metric of 1.

Construction Phase - Assumed to start in July 2016 and last 8 weeks or 40 days.

Off-road Equipment -

Off-road Equipment - Assumed there was 1 backhoe and 1 loader.

Off-road Equipment - Assumed there was 1 crane, 1 forklift, and 2 backhoes/loaders.

Grading - Assumbed excavation of 300 cubic yards and import of 300 cubic yards of engineered fill.

Trips and VMT - Adjusted material hauling to be 120 (60 round trips). Adjusted worker trip length to be 25 miles.

Land Use Change - Assumed conversion of 0.03 acre of wetland to impermeable surface.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstructionPhase	NumDays	0.00	26.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	PhaseEndDate	1/5/2016	7/6/2016
tblConstructionPhase	PhaseStartDate	1/1/2016	7/4/2016
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	AcresOfGrading	1.50	0.00
tblGrading	MaterialExported	0.00	300.00
tblGrading	MaterialImported	0.00	300.00
tblLandUseChange	CO2peracre	0.00	4.31
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	75.00	120.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripLength	12.40	25.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	1.4130	13.7500	8.3545	0.0150	0.4345	0.8352	1.0252	0.1086	0.7684	0.8188	0.0000	1,488.3516	1,488.3516	0.3293	0.0000	1,495.2664
Total	**1.4130**	**13.7500**	**8.3545**	**0.0150**	**0.4345**	**0.8352**	**1.0252**	**0.1086**	**0.7684**	**0.8188**	**0.0000**	**1,488.3516**	**1,488.3516**	**0.3293**	**0.0000**	**1,495.2664**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	1.4130	13.7500	8.3545	0.0150	0.4345	0.8352	1.0252	0.1086	0.7684	0.8188	0.0000	1,488.3516	1,488.3516	0.3293	0.0000	1,495.2664
Total	**1.4130**	**13.7500**	**8.3545**	**0.0150**	**0.4345**	**0.8352**	**1.0252**	**0.1086**	**0.7684**	**0.8188**	**0.0000**	**1,488.3516**	**1,488.3516**	**0.3293**	**0.0000**	**1,495.2664**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	12/31/2015	5	0	
2	Paving	Paving	1/1/2016	12/31/2015	5	0	
3	Architectural Coating	Architectural Coating	1/1/2016	12/31/2015	5	0	
4	Site Preparation	Site Preparation	7/4/2016	7/6/2016	5	3	
5	Grading	Grading	7/7/2016	7/21/2016	5	11	
6	Building Construction	Building Construction	7/22/2016	8/26/2016	5	26	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Rubber Tired Dozers	0	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	10.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	10.00	0.00	120.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	10.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.5 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671		973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**0.0000**	**0.8338**	**0.8338**	**0.0000**	**0.7671**	**0.7671**		**973.0842**	**973.0842**	**0.2935**		**979.2481**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.1150	1.0143	2.1300e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		179.0023	179.0023	9.6900e-003		179.2057
Total	**0.0537**	**0.1150**	**1.0143**	**2.1300e-003**	**0.1900**	**1.4400e-003**	**0.1915**	**0.0504**	**1.3200e-003**	**0.0517**		**179.0023**	**179.0023**	**9.6900e-003**		**179.2057**

3.5 Site Preparation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671	0.0000	973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**0.0000**	**0.8338**	**0.8338**	**0.0000**	**0.7671**	**0.7671**	**0.0000**	**973.0842**	**973.0842**	**0.2935**		**979.2481**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.1150	1.0143	2.1300e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		179.0023	179.0023	9.6900e-003		179.2057
Total	**0.0537**	**0.1150**	**1.0143**	**2.1300e-003**	**0.1900**	**1.4400e-003**	**0.1915**	**0.0504**	**1.3200e-003**	**0.0517**		**179.0023**	**179.0023**	**9.6900e-003**		**179.2057**

3.6 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0544	0.0000	0.0544	6.1400e-003	0.0000	6.1400e-003			0.0000			0.0000
Off-Road	0.5109	4.8826	3.6189	4.6700e-003		0.3759	0.3759		0.3459	0.3459		485.5159	485.5159	0.1465		488.5913
Total	**0.5109**	**4.8826**	**3.6189**	**4.6700e-003**	**0.0544**	**0.3759**	**0.4303**	**6.1400e-003**	**0.3459**	**0.3520**		**485.5159**	**485.5159**	**0.1465**		**488.5913**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2828	3.3156	3.3265	8.1900e-003	0.1901	0.0426	0.2326	0.0520	0.0392	0.0912		823.8334	823.8334	6.1700e-003		823.9630
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.1150	1.0143	2.1300e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		179.0023	179.0023	9.6900e-003		179.2057
Total	**0.3365**	**3.4306**	**4.3408**	**0.0103**	**0.3801**	**0.0440**	**0.4241**	**0.1024**	**0.0405**	**0.1429**		**1,002.8357**	**1,002.8357**	**0.0159**		**1,003.1687**

3.6 Grading - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0544	0.0000	0.0544	6.1400e-003	0.0000	6.1400e-003			0.0000			0.0000
Off-Road	0.5109	4.8826	3.6189	4.6700e-003		0.3759	0.3759		0.3459	0.3459	0.0000	485.5159	485.5159	0.1465		488.5913
Total	**0.5109**	**4.8826**	**3.6189**	**4.6700e-003**	**0.0544**	**0.3759**	**0.4303**	**6.1400e-003**	**0.3459**	**0.3520**	**0.0000**	**485.5159**	**485.5159**	**0.1465**		**488.5913**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2828	3.3156	3.3265	8.1900e-003	0.1901	0.0426	0.2326	0.0520	0.0392	0.0912		823.8334	823.8334	6.1700e-003		823.9630
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.1150	1.0143	2.1300e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		179.0023	179.0023	9.6900e-003		179.2057
Total	**0.3365**	**3.4306**	**4.3408**	**0.0103**	**0.3801**	**0.0440**	**0.4241**	**0.1024**	**0.0405**	**0.1429**		**1,002.8357**	**1,002.8357**	**0.0159**		**1,003.1687**

3.7 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2114	12.2409	7.2649	0.0102		0.8173	0.8173		0.7519	0.7519		1,059.5134	1,059.5134	0.3196		1,066.2247
Total	**1.2114**	**12.2409**	**7.2649**	**0.0102**		**0.8173**	**0.8173**		**0.7519**	**0.7519**		**1,059.5134**	**1,059.5134**	**0.3196**		**1,066.2247**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.1150	1.0143	2.1300e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		179.0023	179.0023	9.6900e-003		179.2057
Total	**0.0537**	**0.1150**	**1.0143**	**2.1300e-003**	**0.1900**	**1.4400e-003**	**0.1915**	**0.0504**	**1.3200e-003**	**0.0517**		**179.0023**	**179.0023**	**9.6900e-003**		**179.2057**

3.7 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2114	12.2409	7.2649	0.0102		0.8173	0.8173		0.7519	0.7519	0.0000	1,059.5134	1,059.5134	0.3196		1,066.2247
Total	**1.2114**	**12.2409**	**7.2649**	**0.0102**		**0.8173**	**0.8173**		**0.7519**	**0.7519**	**0.0000**	**1,059.5134**	**1,059.5134**	**0.3196**		**1,066.2247**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.1150	1.0143	2.1300e-003	0.1900	1.4400e-003	0.1915	0.0504	1.3200e-003	0.0517		179.0023	179.0023	9.6900e-003		179.2057
Total	**0.0537**	**0.1150**	**1.0143**	**2.1300e-003**	**0.1900**	**1.4400e-003**	**0.1915**	**0.0504**	**1.3200e-003**	**0.0517**		**179.0023**	**179.0023**	**9.6900e-003**		**179.2057**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546434	0.062864	0.174629	0.123506	0.034170	0.004889	0.015456	0.023695	0.002073	0.003288	0.006639	0.000690	0.001668

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Appendix D. Lists of Special-Status Wildlife and Plant Species Known to Occur in the Project Area

Pescadero Water Supply and Sustainability Project

IPaC Trust Resource Report

Generated June 30, 2015 11:14 AM MDT

US Fish & Wildlife Service

IPaC Trust Resource Report

Project Description

NAME

Pescadero Water Supply and Sustainability Project

PROJECT CODE

CJG5V-3NLDR-CVBKX-WJDO2-PKJFYU

LOCATION

San Mateo County, California

DESCRIPTION

County of San Mateo property located approximately 1 mile west of the community of Pescadero; Less than 1 acre; Construction of a new water supply tank and well; To be constructed in summer 2016.

U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

Sacramento Fish And Wildlife Office
Federal Building
2800 COTTAGE WAY, ROOM W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Endangered Species

Proposed, candidate, threatened, and endangered species that are managed by the Endangered Species Program and should be considered as part of an effect analysis for this project.

This unofficial species list is for informational purposes only and does not fulfill the requirements under Section 7 of the Endangered Species Act, which states that Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action." This requirement applies to projects which are conducted, permitted or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can be obtained by returning to this project on the IPaC website and requesting an Official Species List from the regulatory documents section.

Amphibians

California Red-legged Frog Rana draytonii — **Threatened**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D02D

Birds

California Least Tern Sterna antillarum browni — **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B03X

Marbled Murrelet Brachyramphus marmoratus — **Threatened**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B08C

Short-tailed Albatross Phoebastria (=Diomedea) albatrus — **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B00Y

Western Snowy Plover Charadrius alexandrinus nivosus — **Threatened**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B07C

Fishes

Steelhead Oncorhynchus (=Salmo) mykiss **Threatened**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E08D

Tidewater Goby Eucyclogobius newberryi **Endangered**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E071

Insects

San Bruno Elfin Butterfly Callophrys mossii bayensis **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=I00Q

Mammals

Southern Sea Otter Enhydra lutris nereis **Threatened**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0A7

Reptiles

San Francisco Garter Snake Thamnophis sirtalis tetrataenia **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C002

Critical Habitats

Potential effects to critical habitat(s) within the project area must be analyzed along with the endangered species themselves.

California Red-legged Frog Critical Habitat Final designated
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D02D#crithab

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

You are responsible for complying with the appropriate regulations for the protection of birds as part of this project. This involves analyzing potential impacts and implementing appropriate conservation measures for all project activities.

Allen's Hummingbird Selasphorus sasin — **Bird of conservation concern**
Season: Breeding

Ashy Storm-petrel Oceanodroma homochroa — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0AV

Bald Eagle Haliaeetus leucocephalus — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B008

Bell's Sparrow Amphispiza belli — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0HE

Black Oystercatcher Haematopus bachmani — **Bird of conservation concern**
Year-round

Burrowing Owl Athene cunicularia — **Bird of conservation concern**
Year-round

Common Yellowthroat Geothlypis trichas sinuosa — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B080

Costa's Hummingbird Calypte costae — **Bird of conservation concern**
Season: Breeding

Fox Sparrow Passerella iliaca — **Bird of conservation concern**
Season: Wintering

Lawrence's Goldfinch Carduelis lawrencei — **Bird of conservation concern**
Season: Breeding

Lesser Yellowlegs Tringa flavipes — **Bird of conservation concern**
Season: Wintering

Loggerhead Shrike Lanius ludovicianus — **Bird of conservation concern**
Season: Wintering
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FY

Long-billed Curlew Numenius americanus — **Bird of conservation concern**
Season: Wintering
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06S

Marbled Godwit Limosa fedoa — **Bird of conservation concern**
Season: Wintering

Nuttall's Woodpecker Picoides nuttallii — **Bird of conservation concern**
Year-round

Oak Titmouse Baeolophus inornatus — **Bird of conservation concern**
Year-round

Olive-sided Flycatcher Contopus cooperi — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FU

Short-billed Dowitcher Limnodromus griseus — **Bird of conservation concern**
Season: Wintering

Short-eared Owl Asio flammeus — **Bird of conservation concern**
Season: Wintering
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0HD

Tricolored Blackbird Agelaius tricolor — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06P

Whimbrel Numenius phaeopus — **Bird of conservation concern**
Season: Wintering

Yellow Warbler dendroica petechia ssp. brewsteri — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0EN

Red Knot Calidris canutus ssp. roselaari — **Bird of conservation concern**
Season: Wintering
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0G6

Refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. If your project overlaps or otherwise impacts a Refuge, please contact that Refuge to discuss the authorization process.

There are no refuges within this project area

Wetlands

Impacts to NWI wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

Project proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

There are no wetlands identified in this project area

Common Name	Scientific Name	Rare Plant Rank	CESA	FESA
Blasdale's bent grass	Agrostis blasdalei	1B.2	None	None
Bent-flowered fiddleneck	Amsinckia lunaris	1B.2	None	None
Slender silver moss	Anomobryum julaceum	4.2	None	None
Anderson's manzanita	Arctostaphylos andersonii	1B.2	None	None
Schreiber's manzanita	Arctostaphylos glutinosa	1B.2	None	None
Kings Mountain manzanita	Arctostaphylos regismontana	1B.2	None	None
Ocean bluff milk-vetch	Astragalus nuttallii var. nuttallii	4.2	None	None
Coastal marsh milk-vetch	Astragalus pycnostachyus var. pycnostachyus	1B.2	None	None
Round-leaved filaree	California macrophylla	1B.1	None	None
Johnny-nip	Castilleja ambigua var. ambigua	4.2	None	None
Franciscan thistle	Cirsium andrewsii	1B.2	None	None
San Francisco collinsia	Collinsia multicolor	1B.2	None	None
Branching beach aster	Corethrogyne leucophylla	3.2	None	None
Mountain lady's-slipper	Cypripedium montanum	4.2	None	None
Western leatherwood	Dirca occidentalis	1B.2	None	None
California bottle-brush grass	Elymus californicus	4.3	None	None
San Mateo woolly sunflower	Eriophyllum latilobum	1B.1	CE	FE
Sand-loving wallflower	Erysimum ammophilum	1B.2	None	None
Minute pocket moss	Fissidens pauperculus	1B.2	None	None
Stinkbells	Fritillaria agrestis	4.2	None	None
Fragrant fritillary	Fritillaria liliacea	1B.2	None	None
San Francisco gumplant	Grindelia hirsutula var. maritima	3.2	None	None
Butano Ridge cypress	Hesperocyparis abramsiana var. butanoensis	1B.2	CE	FE
Kellogg's horkelia	Horkelia cuneata var. sericea	1B.1	None	None
Point Reyes horkelia	Horkelia marinensis	1B.2	None	None
Harlequin lotus	Hosackia gracilis	4.2	None	None
Coast iris	Iris longipetala	4.2	None	None
Perennial goldfields	Lasthenia californica ssp. macrantha	1B.2	None	None
Coast yellow leptosiphon	Leptosiphon croceus	1B.1	None	None

Common Name	Scientific Name	Rare Plant Rank	CESA	FESA
Rose leptosiphon	Leptosiphon rosaceus	1B.1	None	None
Point Reyes meadowfoam	Limnanthes douglasii ssp. sulphurea	1B.2	CE	None
Arcuate bush-mallow	Malacothamnus arcuatus	1B.2	None	None
Marsh microseris	Microseris paludosa	1B.2	None	None
Elongate copper moss	Mielichhoferia elongata	2B.2	None	None
Woodland woolythreads	Monolopia gracilens	1B.2	None	None
Monterey pine	Pinus radiata	1B.1	None	None
Choris' popcorn-flower	Plagiobothrys chorisianus var. chorisianus	1B.2	None	None
San Francisco popcorn-flower	Plagiobothrys diffusus	1B.1	CE	None
Pine rose	Rosa pinetorum	1B.2	None	None
Hoffmann's sanicle	Sanicula hoffmannii	4.3	None	None
Marin checkerbloom	Sidalcea hickmanii ssp. viridis	1B.3	None	None
San Francisco campion	Silene verecunda ssp. verecunda	1B.2	None	None
Santa Cruz microseris	Stebbinsoseris decipiens	1B.2	None	None
Slender-leaved pondweed	Stuckenia filiformis ssp. alpina	2B.2	None	None
Santa Cruz clover	Trifolium buckwestiorum	1B.1	None	None

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (San Gregorio (3712234) or Half Moon Bay (3712244) or Woodside (3712243) or La Honda (3712233) or Franklin Point (3712223) or Pigeon Point (3712224))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Anderson's manzanita *Arctostaphylos andersonii*	PDERI04030	None	None	G2	S2	1B.2
arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0	None	None	G1Q	S1	1B.2
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
Bay checkerspot butterfly *Euphydryas editha bayensis*	IILEPK4055	Threatened	None	G5T1	S1	
black swift *Cypseloides niger*	ABNUA01010	None	None	G4	S2	SSC
Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060	None	None	G2	S2	1B.2
Butano Ridge cypress *Hesperocyparis abramsiana var. butanoensis*	PGCUP04082	Endangered	Endangered	G1T1	S1	1B.2
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061	None	None	G3T2Q	S2	1B.2
coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170	None	None	G1	S1	1B.1
coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2	None	None	G2T2	S2	1B.2
coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
Crystal Springs fountain thistle *Cirsium fontinale var. fontinale*	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0	None	None	G1	S1	1B.2
Edgewood blind harvestman *Calicina minor*	ILARA13020	None	None	G1	S1	
Edgewood Park micro-blind harvestman *Microcina edgewoodensis*	ILARA47010	None	None	G1	S1	
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S2S3	SSC
fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1	None	None	G5T1	S1	1B.2
Franciscan thistle *Cirsium andrewsii*	PDAST2E050	None	None	G3	S3	1B.2
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
Hall's bush-mallow *Malacothamnus hallii*	PDMAL0Q0F0	None	None	G2Q	S2	1B.2
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043	None	None	G4T2	S2?	1B.1
Kings Mountain manzanita *Arctostaphylos regismontana*	PDERI041C0	None	None	G2	S2	1B.2
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
marsh microseris *Microseris paludosa*	PDAST6E0D0	None	None	G2	S2	1B.2
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040	None	None	G2	S2	
minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0	None	None	G3?	S1	1B.2
monarch butterfly *Danaus plexippus*	IILEPP2010	None	None	G5	S3	
Monterey pine *Pinus radiata*	PGPIN040V0	None	None	G1	S1	1B.1
Monterey Pine Forest *Monterey Pine Forest*	CTT83130CA	None	None	G1	S1.1	
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered	None	G5T1	S1	
N. Central Coast Calif. Roach/Stickleback/Steelhead Stream *N. Central Coast Calif. Roach/Stickleback/Steelhead Stream*	CARA2633CA	None	None	GNR	SNR	
North Central Coast Short-Run Coho Stream *North Central Coast Short-Run Coho Stream*	CARA2632CA	None	None	GNR	SNR	
North Central Coast Steelhead/Sculpin Stream *North Central Coast Steelhead/Sculpin Stream*	CARA2637CA	None	None	GNR	SNR	
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Northern Interior Cypress Forest *Northern Interior Cypress Forest*	CTT83220CA	None	None	G2	S2.2	
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038	None	Endangered	G4T2	S2	1B.2
Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010	None	None	G2?	S2?	
rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180	None	None	G1	S1	1B.1
round-leaved filaree *California macrophylla*	PDGER01070	None	None	G2	S2	1B.1
Sacramento-San Joaquin Coastal Lagoon *Sacramento-San Joaquin Coastal Lagoon*	CALA1360CA	None	None	GNR	SNR	
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A	None	None	G5T2	S2	SSC
San Francisco campion *Silene verecunda ssp. verecunda*	PDCAR0U213	None	None	G5T2	S2	1B.2
San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0	None	None	G2	S2	1B.2
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082	None	None	G5T2T3	S2S3	SSC
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
San Francisco popcornflower *Plagiobothrys diffusus*	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
San Mateo thorn-mint *Acanthomintha duttonii*	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
San Mateo woolly sunflower *Eriophyllum latilobum*	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
sand-loving wallflower *Erysimum ammophilum*	PDBRA16010	None	None	G2	S2	1B.2
Santa Cruz kangaroo rat *Dipodomys venustus venustus*	AMAFD03042	None	None	G4T1	S1	
Santa Cruz microseris *Stebbinsoseris decipiens*	PDAST6E050	None	None	G2	S2	1B.2
Serpentine Bunchgrass *Serpentine Bunchgrass*	CTT42130CA	None	None	G2	S2.2	
slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091	None	None	G5T5	S3	2B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S2S3	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Valley Needlegrass Grassland *Valley Needlegrass Grassland*	CTT42110CA	None	None	G3	S3.1	
western leatherwood *Dirca occidentalis*	PDTHY03010	None	None	G2	S2	1B.2
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2	SSC
white-rayed pentachaeta *Pentachaeta bellidiflora*	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
woodland woollythreads *Monolopia gracilens*	PDAST6G010	None	None	G2G3	S2S3	1B.2

Record Count: 71

Appendix E. Biological Impact Form

San Mateo County Planning Division
Department of Environmental Management
455 County Center, 4th Floor
Redwood City, CA 94063
Phone: (650) 363-4161

PESCADERO (CSA 11) WATER SUPPLY AND SUSTAINABILITY PROJECT

BIOLOGICAL IMPACT FORM

For compliance with:

LOCAL COASTAL PROGRAM POLICY 7.5

Filing Date:
Public Hearing:
Approval Date:

1. Project Location:

The Pescadero Water Supply and Sustainability Project (Project) involves construction of a new municipal water supply well and storage tank and implementation of a water conservation program for well users within County Service Area No. 11 (CSA 11). The Project is located in coastal San Mateo County, California, approximately one mile west of the unincorporated community of Pescadero, just off Bean Hollow Road on parcels owned by the County of San Mateo (Appendix A, Figures 1 and 2). The site where the proposed new well and water tank will be located is an existing graded area approximately 16,000 square feet in size, adjacent to the existing CSA 11 water storage tank (APN 086180060). The staging and temporary material storage area is approximately 10,000 square feet in size and is located immediately east of the construction site on a disturbed gravel pad currently used for parking. The access road is located immediately north of the construction site (APN 086160060). The construction area, staging area, material storage area, and access road are located on the site of a former rock quarry and is currently used by the County of San Mateo Department of Public Works (County) as a maintenance corporation yard. Additionally, security (chain-link) fencing will be installed around new and existing CSA 11 structures, including existing water wells located uphill from the water tank location along a dirt access road. The proposed project would provide a well that accesses a deeper portion of the groundwater aquifer, without increasing the amount of groundwater extracted. The project site is mapped as occurring on the United States Geological Survey (USGS) Pigeon Point 7.5' topographic map (Latitude 37:14:45.795, Longitude -122:23:57.731).

2. Assessor's Parcel Number and Any Applicable Planning Permit Numbers:

The project site is located entirely within County owned parcels - APN 086180060 and APN 086160060.

3. Owner/Applicant: County of San Mateo Department of Public Works

c/o Mark Chow, P.E., Principal Civil Engineer, Utilities-Flood Control-Watershed Protection.

Address: 555 County Center, 5th Floor, Redwood City, Ca. 94063-1665

Phone: (650) 599-1489

4. Principal Investigator: Carole Foster, M.S., Biologist, Utilities-Flood Control-Watershed Protection.

Address: 555 County Center, 5th Floor, Redwood City, Ca. 94063-1665

Phone: (650) 599-1448

Fax: (650) 361-8220

5. Report Summary:

The County of San Mateo Department of Public Works (County) proposes to construct a new municipal water well and storage tank for the purpose of extending the life of the Pescadero Water Supply System for CSA 11. The new well and storage tank would be installed in an existing graded area approximately 16,000 square feet in size, adjacent to an existing water storage tank located approximately one mile west of the unincorporated community of Pescadero, in San Mateo County, California on a parcel currently owned by the County of San Mateo and used by the County of San Mateo Department of Public Works for supplying drinking water to CSA 11 customers and as a County maintenance corporation yard. The staging and material storage area is located immediately east of the construction site on a 10,000 square foot disturbed gravel pad currently used for parking. The access road is located immediately north of the construction site. The construction area, staging area, material storage area, and access road are located on the site of a former rock quarry. Security fencing (chain-link fencing) will be installed around the new and existing wells.

The proposed project location consists of primarily upland grassland and ruderal habitat in the construction areas and a gravel staging area. A stand of spreading rush (*Juncus patens*), approximately 1,500 square feet in area, occurs in the vicinity of the proposed water tank site. Special status plant species documented within a ½ mile radius of the project site include coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*), Choris' popcorn-flower (*Plagiobothrys chorisianus* var. *chorisianus*), and round-leaved filaree (*Erodium macrophyllum*). The potential for these and other special status plant species to occur within the project site is discussed in Section 10, below. Special status animal species that may potentially occur within the project site include San Francisco garter snake (SFGS) (*Thamnophis sirtalis tetrataenia*), California red-legged frog (CRLF) (*Rana aurora draytonii*), western pond turtle (WPT) (*Emys marmorata*), white-tailed kite (*Elanus leucurus*), saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), pallid bat (*Antrozous pallidus*), and San Francisco dusky-footed woodrat (SFDW) (*Neotoma fuscipes annectens*). Designated critical habitat for the federally listed California red-legged frog occurs in the project area and critical habitat for Coho salmon and steelhead trout also occur in the project vicinity. SFGS and CRLF have been observed at or adjacent to waterbodies in the project area. However, the work area and site access occur in an existing graded and disturbed area. No other sensitive plants or animal species were observed during the site surveys.

Potential impacts to biological resources from the proposed project have been identified, such as reduced water quality to aquatic species, disturbance of nesting birds, negative impacts on special status species,

and wetland habitat impacts. Potential project related impacts will be minimized or avoided by implementation of best management practices (BMPs) and protection and minimization measures. The project includes restrictions on construction timing, pre-construction sensitive species surveys, on-site monitoring by a qualified biologist, exclusionary fencing, erosion control and containment BMPs, revegetation of disturbed areas following construction activities, and creation of wetland habitat from adjacent upland habitat to mitigate for unavoidable wetland impacts.

To provide a sustainable water supply system for CSA 11, a new water storage tank, a new municipal water well, and associated infrastructure need to be constructed. These facilities are designed to extend the life of CSA 11's water supply for at least the next 50 years without increasing the amount of extracted groundwater and to provide a reliable water supply in the event of an emergency. Additionally, a water conservation program will be implemented in the CSA 11 community to reduce water supply demand and further support implementation of a sustainable water supply system.

6. Project and Property Description:

The County of San Mateo Department of Public Works (County) proposes to construct a new water storage tank and municipal water well for the purpose of extending the life of the County Service Area No. 11 (CSA 11) water supply system in unincorporated Pescadero. The new storage tank and well would be installed adjacent to an existing CSA 11 water storage tank and in the vicinity of two existing wells, located approximately one mile west of the community of Pescadero, in San Mateo County, California. The proposed new storage tank and well would be owned and operated by the County. Construction of the proposed storage tank and well would be jointly funded by the County (CSA 11) and the California Department of Water Resources (DWR) through an Integrated Regional Water Management (IRWM) grant as part of the Pescadero Water Supply and Sustainability Project. Security fencing (chain-link fencing) will be installed around new and existing water wells. The Project is located on parcels currently owned by the County and used by the County of San Mateo Department of Public Works for supplying drinking water to CSA 11 customers and as a County maintenance corporation yard.

Prior to 1993, the Pescadero community's supply of drinking water depended on small domestic wells, water from surface impoundments, and locally derived groundwater from wells installed in the alluvial aquifer of Pescadero and Butano Creeks. In the 1970's and 1980's, these sources were found to contain relatively high concentrations of nitrate and other naturally occurring salts. This situation prompted the development of an alternative groundwater source located near the top of a hill one mile west of Pescadero. Well 2 (test or standby well) was installed in 1983; Well 1 (production well), located 300 feet from Well 2, was installed in 1992. These wells have been the CSA 11 community's source of drinking water and fire protection since 1993. In 1993, the estimate of the aquifer's longevity was about 25 years.

Well 2 is a 6-inch diameter PVC-cased gravel pack well, completed to a depth of 257 feet, and constructed with 40 feet of 0.04 inch (40 slot) well screen. The non-pumping or static water level was about 170 feet below ground surface in 1983. Well 1 is a 10-inch diameter PVC-cased gravel pack well completed to a depth of 260 feet and constructed with 40-feet of slotted screen. The CSA 11 water system also includes a 140,000-gallon storage tank and a distribution system. The existing tank and distribution system are in good condition.

In April 2001, the County retained Todd Engineers to assess the long-term reliability of the water source for the CSA 11 water system. The Todd report titled, "Assessment of Source Water for the Pescadero Water System," 2002 concluded that based on the current pumping rate the existing wells would fail between 2009 and 2016. The consultant recommended installation of a new municipal water well in the

vicinity of the existing wells or at a lower elevation near the distribution tank to reduce overall drilling depth. Todd Engineers estimated installation of a new municipal water well would extend the life of CSA 11 water supply to at least 38 years. An update to the 2002 study was conducted in 2013 by HydroScience Engineers, Inc., which found the rate of decline in water surface elevation over the last 10 years to be approximately 0.6 feet per year, estimating well failure to occur between 2018 and 2020 (HydroScience Engineers 2013).

Project Site Description

The construction area (proposed new well and water tank location) is an existing graded area approximately 26,000 square feet in size, adjacent to the existing CSA 11 water storage tank. The existing water wells are located uphill from the water tank location along a dirt access road. The staging and material storage area is located immediately east of the construction site on a 10,000 square foot disturbed gravel pad currently used for parking. The access road is located immediately north of the construction site. The construction area, staging area, material storage area, and access road are located on the site of a former rock quarry.

In August 2014, the County retained Carlton Engineering, Inc. to assess the geotechnical suitability of the site for placement of a new 140,000 gallon water tank (Carlton Engineering 2014). Two areas within the vicinity of the existing storage tank were assessed; the preferred tank site is located immediately adjacent to the existing tank and the alternate tank site is located approximately 300 feet to the northeast of the existing tank on a disturbed gravel area. The purpose of assessing multiple sites was to determine if it would be feasible to utilize the alternate site in order to avoid impacts to California Coastal Commission jurisdictional wetlands. The geotechnical study found that liquefaction could occur at the alternate tank site (gravel site) and recommended siting the new tank at the preferred tank site directly adjacent to the existing tank.

The 2014 geotechnical study also found that the preferred tank site consists of subgrade materials that transition from medium-dense to dense clayey sand. Due to the presence of potentially compressible near-surface clayey soils, it will be necessary to over-excavate the tank footprint to a depth of 5 feet below the proposed finish grade of the tank invert to reduce the potential for settlement.

A wetland delineation (Appendix E) of the Project site was conducted by BioMaAS, Inc. on November 12, 2014, to identify habitat types and to assess the potential for the presence of wetlands or plant communities within the Project area that may fall under the jurisdiction of various federal, state, or local regulatory agencies (BioMaAS 2014). Dominant plant species were identified, and areas supporting significant hydrophytic vegetation or evidence of wetland hydrology were described and mapped.

The sensitive habitats component of the San Mateo County Local Coastal Program (LCP) defines a 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 (County of San Mateo 2013). The wetland delineation reported a stand of primarily spreading rush (*Juncus patens*), approximately 1,500 square feet in area, occurring in the vicinity of the proposed water tank site (Appendix A, Figure 3). The spreading rush stand was roughly estimated to support approximately 50% cover of spreading rush. Although this native species is often seen in dry soil conditions, it is also encountered in moist soil conditions. The indicator status of spreading rush is facultative wetland (FACW), meaning it usually occurs in wetlands (estimated probability 67%-99%), but is sometimes found in non-wetlands (Lichvar, et. al. 2014). The County, under the San Mateo County LCP, and following the California Coastal Commission guidelines, has the discretion to identify any feature as a wetland if it satisfies just one of the three wetland parameters including wetland hydrology,

wetland soils, or a preponderance of wetland vegetation. As such, these features will likely fall under the jurisdiction of the California Coastal Commission under the auspices of the San Mateo County LCP because they are clearly dominated by wetland plant species. However, it is not anticipated that this wetland will fall under the jurisdiction of the U.S. Army Corps of Engineers or the San Francisco Bay Regional Water Quality Control Board given the absence of wetland hydrology and wetland soils in the Project area (BioMaAS 2014).

A shallow, intermittent drainage swale is present immediately east of the construction site (existing and proposed storage tank site). The swale trends in a southerly direction for approximately 687 feet before emptying into a sediment retention pond (Quarry Pond), an impoundment constructed when the quarry was active. Overflow discharges from the impoundment flow through a culvert under Bean Hollow Road and through what appears to be a straight ditch until discharging into Butano Creek.

The total footprint of potential ground disturbance from the Project consists of approximately 0.60 acre, including 0.03 acre of San Mateo County LCP jurisdictional wetland habitat, 0.34 acre of grassland/ruderal upland, and 0.23 acre disturbed gravel pad. An additional 0.10 acre would be disturbed due to the conversion of upland grassland habitat to seasonal wetland habitat to satisfy mitigation requirements (see Mitigation Site Construction description, below). Table 3 in Section 9, below, lists the acreages of impacts by habitat type and proposed mitigation.

Site Access, Staging, and Material Storage/Disposal

Existing paved and unpaved roads currently used by County maintenance staff would be used for ingress and egress into and out of the Project parcel. Access roads are adequately sized to support drill rig and other construction equipment and vehicles. Roads may require standard maintenance such as mowing of shoulders, etc. The Project site can be accessed from Bean Hollow Road through a County-owned gated, paved road (Appendix A, Figure 2).

Construction equipment would be staged at a flat, graded gravel area, approximately 0.23 acres (10,000 sq. ft.) in size located adjacent to the new well and tank site, which is currently used for temporary storage and parking by the County. Excavated material will be temporarily stockpiled at this location for later disposal at a landfill or other appropriate upland facility that will not impact wetlands or waters. All material will be removed from the Project area at the end of the construction period.

Well Drilling, Development, and Testing

Following the staging and set-up of equipment on the site, well drilling would commence. A new 150 gallon per minute (gpm) capacity well and pump will be installed. The installation of the new well would consist of an approximately 20-inch diameter borehole drilled to a depth of 100 feet below mean sea level (287 feet below ground surface) to intercept a deeper portion of the Pigeon Point Formation aquifer. A conventional drill rig would drill the well with a 40-foot-long collapsible derrick. Associated drilling equipment including a flatbed truck with drilling rods would be staged in the immediate vicinity on pre-existing disturbed areas. Upon completion of the well installation, pumping tests would be conducted to determine appropriate pumping rates and target efficiency. The new well pump and associated monitoring equipment would be contained within a six-foot (6') high security fence. Existing electrical lines located at the storage tanks will be used to provide power to operate the new pump.

During the drilling process, a bentonite drilling fluid would be used to cool the drill bit, move cuttings out of the well hole, and temporarily stabilize the walls of the well shaft. A mud pit approximately 20-feet long x 10-feet wide x 5-feet deep would be excavated on the site or alternatively a portable steel tank would be used to contain the drilling fluids. During the drilling process, periodic geophysical testing

would be conducted at specified depths. Upon completion of the well hole, a well casing and well screen would be installed and sealed into the upper portion of the well shaft. The well screen would be an extension of the casing and would keep the well shaft clear during pumping.

The well development process would commence upon completion of the well casing and well screen installation. Well development is intended to clean and unclog the interface of the well hole and the aquifer, as well as maximize the efficiency of the well. A temporary pump would be used to flush increasing volumes of potable water into and out of the well hole. All water generated during the well drilling and well development process would be directed away from the well site and allowed to dissipate over the vegetated slope to the north of the Project site where it would not cause erosion or have any impact on existing surface waters. Once the well is fully developed, pumping tests would be conducted to determine appropriate pumping rates and target efficiency. Water quality would be monitored to ensure well water is potable. Following the pumping tests, the well hole would be flushed with chlorinated water (5% chlorine by volume). The chlorinated water would be neutralized with additives at the time it is pumped out of the well hole.

Installation of Permanent Pump and Connection to Existing Storage Tank

Following well development and testing, a permanent pump and connection to the existing storage tanks would be installed. An underground water transmission line would be constructed to deliver water from the well to the storage tanks. Electrical power for operation of the pump would be taken from the existing electrical panel at the existing chlorine building.

Construction of New Water Storage Tank

A new 140,000 gallon, 44-foot diameter water storage tank will be installed adjacent to the existing tank. The new tank will consist of a bolted steel or welded steel round configuration similar to the existing tank. New water pipelines will be installed to connect the new well to the existing chlorine building and to connect the new tank to the existing water supply lines. The pipelines will be 6-inch PVC pipe.

Due to the presence of potentially compressible near-surface clayey soils, it will be necessary to excavate the tank footprint to a depth of 5 feet below the proposed finish grade of the tank invert to reduce the potential for settlement. This would produce approximately 300 cubic yards (CY) of excavated material, which will be replaced with engineered fill. The excavated clayey soils may be reused at the proposed wetland mitigation site. Due to the slight slope of the site and the requirement for a flat foundation for new storage tank, an approximately 3-ft tall retaining wall will be constructed around the new storage tank to adjust for the change in grade.

The Project also includes installation of a new alarm system, which will ensure that the operators are notified in the event of an emergency, pump shutdown, or low tank level.

Installation of Security Fencing

Six (6) foot tall security fencing (chain-link fencing) will be installed around existing and new wells. Fencing around the existing wells located on the top of a ridge uphill of the water storage tank location will be installed using hand tools and small equipment (e.g. a small auger) to minimize ground disturbance.

Water Supply Sustainability

The County will initiate a water conservation program for customers in CSA 11 by providing residents with incentives to install water-saving devices, such as high efficiency toilets. The goal of the water conservation program is to achieve a 2 acre-foot per year (AFY) reduction in annual CSA 11 water

demand and successful device installations. The water conservation program will reduce water supply demand and help support implementation of a sustainable water supply system.

Mitigation Site Construction

As stated above, the County proposes to construct a new water storage tank adjacent to the existing tank on an area containing approximately 0.03 acres of San Mateo County Local Coastal Program (LCP) jurisdictional freshwater wetland habitat. The pre-existing freshwater wetland habitat present at the new water tank site is composed of approximately 1,500 square feet of approximately 50% native facultative wetland and obligate wetland vegetation and 50% of ruderal upland species (Appendix E).

To mitigate for impacts to San Mateo County LCP jurisdictional wetlands, the County proposes to convert a nearby area of upland, ruderal habitat to wetland habitat by grading the site to create small depressions in which wetland plants, such as spreading rush, would be installed. The proposed mitigation area would be approximately 0.1 acre in size and would be located adjacent to the existing Quarry Pond.

The proposed mitigation site consists of approximately 0.1 acres of ruderal, annual grassland dominated by non-native species such as ripgut brome (*Bromus diandrus*), rattlesnake grass (*Briza maxima*), Italian thistle (*Carduus pycnocephalus*), and wild radish (*Raphanus sativus*). A Habitat Mitigation and Monitoring Plan (HMMP) will be developed prior to Project implementation to provide the concepts and direction for implementation and maintenance of the mitigation required by the California Coastal Commission under the auspices of the San Mateo County LCP. The mitigation site will be regraded with existing soils to create slight depressions which will be revegetated with wetland plant species salvaged from the construction site and/or obtained from local nursery stock. A seed mix containing coastal plants and sterile hybrid wheatgrass (*Elymus* X *Triticum*) will be spread over the newly planted areas. The sterile wheatgrass is used to provide a fast growing cover crop until wetland plants are established. Table 3, below, lists plant species to be used. Wetland plants will be installed to obtain at least 75% native coverage. The mitigation site will be planted in late fall to coincide with the rainy season, if possible. The site will be irrigated on an as-needed basis for at least the first growing season. Conversion of 0.1 acres of ruderal, annual grassland habitat to wetland habitat is not expected to have any impact on the overall ecology of the area as there is an abundance of annual grasslands that surround the project site.

An alternative storage tank site was evaluated to attempt to avoid impacts to wetlands; however, the preferred tank site was determined to be the best option due to liquefaction potential in the alternative site

Best Management Practices and Conservation Measures

Potential impacts to beneficial uses and biological resources at the project site will be prevented by the use of the following best management practices (BMPs) and conservation measures:

- Project timing during the dry season (June 1 to October 31). Work shall not occur when there is a forecast of more than 30% chance of rain or at the onset of any precipitation.
- If work is scheduled to begin prior to August 31, a qualified biologist shall conduct a pre-construction nesting bird survey. If nesting birds are detected near the project site, a 100-foot exclusion zone (300-foot for raptors) will be established for protection. If the exclusion zone is located within the immediate work area, construction will be delayed until the young have fledged and left the nest.
- Special status plant species surveys will be conducted during peak blooming periods,

in order to maximize the likelihood of locating sensitive species in the immediate work area. Special status plants will be clearly marked/flagged or temporary construction fencing will be erected to designate the work area and delineate the areas to be avoided (see Section 9, below).

- Pre-construction surveys for San Francisco dusky-footed woodrat nests shall be conducted by a qualified biologist. If woodrat nests are found in the project area, nests shall be clearly marked/flagged and a 10-foot buffer will be designated. If nests are located within 10-feet of the active work area, a qualified biologist will be present during construction activities to ensure no woodrat nest is impacted.
- Construction personnel shall participate in a special status species and BMP implementation training given by a qualified biologist prior to the start of construction. The training shall include sensitive species identification and appropriate avoidance measures.
- Under the direction of a qualified biologist, exclusionary fencing (e.g. silt fencing) shall be installed around the perimeter of the area of impact, including the storage tank and well construction site, staging area, and mitigation site. A qualified biologist shall conduct a pre-activity survey of the fence installation area immediately prior to (i.e., the day of) the commencement of installation and shall be on-hand to monitor fence installation. The fencing shall be installed with the wire mesh or wooden stake side facing the construction area. Fencing shall be trenched into the soil at least 4 inches and the soils shall be carefully compacted against both sides of the fence for its entire length to prevent animals from passing under the fence. The vegetation on the non-construction side of the fence shall be maintained at a height of 4 inches or less to prevent snakes from maneuvering over the fence. Exit funnels shall be installed at regular intervals along the fencing, as directed by a qualified biologist, to allow wildlife the ability to move out of the work area. The on-site biologist shall inspect the exclusionary fence daily. Undercut fences and split, torn, slumping, or weathered fabric shall be repaired by the contractor immediately. Dirt and materials shall not be allowed to accumulate more than ½ the height of the fence. This fence would function as a barrier to prevent reptiles and amphibians from incidentally entering the construction area. The fence would also demarcate the limits of construction and staging activities.
- BMPs to prevent construction materials or debris from entering waterways (i.e. straw wattles, sterile straw bales, and/or silt fencing) will be installed prior to the initiation of construction work and will be properly maintained. Straw wattles or erosion control blankets with plastic monofilament shall not be allowed. The silt fence/wildlife barrier shall be installed following the guidelines detailed above. At the end of project construction, all materials trapped by the barriers and excess materials such as dirt, rock, or debris shall be collected and removed from the project site. No materials shall be allowed to enter into adjacent aquatic habitats.
- On-site monitoring of ground disturbing construction activities shall be conducted by a qualified biologist. A qualified biologist shall conduct a pre-construction survey for all listed species before the start of ground disturbing activities and each day prior to the

start of work. All listed species must be avoided during project implementation. If San Francisco garter snake or California red-legged frog is detected within the active work area, construction activities shall stop until the animal leaves on its own. If listed species are detected at the project site, California Department of Fish and Wildlife and U.S. Fish and Wildlife Service shall be contacted immediately for guidance on how to proceed. Construction will not take place in any area in which listed species are present (see sensitive species information sheets in Appendix C). Additionally, the on-site biologist shall inspect beneath all vehicles that have been parked for more than 15 minutes before they are moved or leave the project site.

- A litter control program shall be instituted at the project site. All workers will ensure that food scraps, paper wrappers, food containers, cans, bottles, and other trash from the project area are deposited in covered or closed trash containers. The trash containers shall be removed from the area at appropriate intervals. All trash and debris shall be disposed of at an appropriate facility.
- All heavy equipment will be operated from paved or unpaved roadways and previously disturbed areas within the project site.
- Fueling and maintenance of vehicles shall not take place within any areas where an accidental discharge to waterways may occur.
- All leaks, drips and spills shall be immediately cleaned up to prevent entry into drainages and water bodies. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- Erosion control and containment BMPs (e.g., installation of sandbags, silt fencing, and/or natural fiber tightly woven straw wattles, street sweeping, etc.) shall be installed to prevent delivery of pollutants into waterways.
- The removal of wetland and riparian vegetation shall be minimized. When possible, wetland and riparian vegetation shall be trimmed as opposed to removed. No trees will be removed, but may be trimmed as needed to provide access to the work sites.
- Vegetation, sediment, debris, and trash will not be stockpiled on-site and shall be removed from the site at the end of each workday.
- Any disturbed areas shall be seeded with a native seed mix following construction activities.
- The County will mitigate for unavoidable impacts on seasonal wetland habitat by creating wetland habitat from upland habitat in close proximity to the Project area. The County anticipates 0.03 acre of permanent impacts to Local Coastal Program (LCP) jurisdictional wetland habitat and thus, shall create 0.1 acre of wetland habitat (3:1 ratio). To the extent feasible, wetland habitat creation will occur concurrent with implementation of the Project. Prior to the start of Project construction, the County will develop and implement a Habitat Mitigation and Monitoring Plan (HMMP) for creation of wetland habitat.

Use of preventative measures such as these is an integral part of the maintenance procedures followed by the County, as outlined in the County of San Mateo Watershed Protection Program's *Maintenance*

Standards (County, 2004).

7. Methodology:

The project site was analyzed for potential impacts to biological resources including special status plant and animal species. Special status species are those which have been designated as endangered, threatened, or species of concern by federal or state regulatory agencies. The analysis consisted of a review of federal and state species-specific data, comprehensive field surveys of the proposed work area and site access, and an evaluation of the likeliness of special status species occurring based on survey results to determine the likelihood of impacts.

A review of special status species with the potential to occur in the project area was conducted using a combination of state and federal agency resources. A list of special status plant and animal species known to, or believed to occur within the project vicinity (USGS Pigeon Point, Franklin Point, San Gregorio, and La Honda 7.5' quadrangles) was generated using the Sacramento USFWS website (USFWS 2015). A list of California Native Plant Society (CNPS) plants listed as Rare and Endangered was queried using the CNPS Inventory website (CNPS 2015). The California Natural Diversity Database (CNDDB) compiled by the CDFW was queried to determine if any of the special status plant or animal species from the USFWS and CNPS lists are known to occur within the project vicinity. The CNDDB query results were further analyzed and mapped (Appendix A, Figure 4) to determine if any special status species have been documented to occur within ½ mile of the project site. The results of these three queries have been tabulated in Section 10, Table 4. Marine species and species that do not typically occur within the plant communities and habitats that currently exist in the project area were excluded.

County biologist, Carole Foster, surveyed the project area on March 6 and April 30, 2015, to determine potential impacts to biological resources (e.g., seasonal wetlands, nesting birds, semi-aquatic special status animals, etc.). Qualifications of the County biologist are given in Appendix B. The surveys involved documenting the physical characteristics of the project site such as presence of water, presence of sensitive habitat, and existing sedimentation and/or erosion problems. All plant and animal species observed in the project area were documented and are presented in Section 8 (Tables 1 and 2). Major plant communities and habitat types within and adjacent to the sites were identified in order to evaluate the suitability of the habitat for special status species.

Additionally, a wetland delineation (Appendix E) of the project site was conducted by BioMaAS, Inc. on November 12, 2014, to identify habitat types and to assess the potential for the presence of wetlands or plant communities within the project area that may fall under the jurisdiction of various federal, state, or local regulatory agencies (BioMaAS 2014). Dominant plant species were identified, and areas supporting significant hydrophytic vegetation or evidence of wetland hydrology were described and mapped. The wetland delineation results are summarized in Section 8, below.

8. Results:

Three vegetative habitat types, non-native annual grasslands, riparian/wetland, and coastal scrub, were documented within and adjacent to the project site. Below is a description of each habitat type as well as a description of the setting within the project site.

Non-native Annual Grasslands

The immediate work area and the access roadway shoulders contain patches of bare soil and ruderal annual grassland habitat consisting of non-native annual grasses such as wild oat (*Avena fatua*) and Italian rye (*Lolium multiflorum*), mustard (*Brassica* sp.), plantain (*Plantago lanceolata*), and bristly ox-tongue (*Picris echioides*) as the dominant plant species. Annual grassland habitat of this nature can be utilized to a very minimal degree for foraging by common species of wildlife such as Botta's pocket gopher (*Thomomys bottae*).

Riparian/Wetland

Riparian/wetland habitat is found along the perimeter of the adjacent Quarry Pond, within the drainage channels, and along the paved access road. Riparian/wetland habitat is a combination of aquatic and terrestrial habitat within stream corridors and along ponds, and extends to the dripline (extent of foliage) of the riparian vegetation. Within the project area, this habitat type is dominated by willow (*Salix* sp.), and creek dogwood (*Cornus sericea*). Other plant species include California bay (*Umbellularia californica*), eucalyptus (*Eucalyptus* sp.), California blackberry (*Rubus ursinus*), California wax myrtle (*Morella californica*), poison oak (*Toxicodendron diversilobum*), mugwort (*Artemisia douglasiana*), sword fern (*Polystichum* sp.), and Pampas grass (*Cortaderia* sp.). Many common aquatic and terrestrial wildlife species such as Pacific chorus frog (*Pseudacris sierra*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), and brush rabbits (*Sylvilagus bachmani*) seek riparian/wetland habitats for water, places to forage, and refuge from predators. As discussed in Section 10, six special status species, California red-legged frog (CRLF), San Francisco garter snake (SFGS), western pond turtle (WPT), and San Francisco dusky-footed woodrat (SFDW), pallid bat, and saltmarsh common yellowthroat could be expected to occur within riparian/wetland habitats adjacent to or within the project area.

The sensitive habitats component of the San Mateo County Local Coastal Program (LCP) defines a 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 (County of San Mateo 2013). Such wetlands can include mudflats (barren of vegetation), marshes, and swamps, and can be either fresh or saltwater, along streams (riparian), in tidally influenced areas, marginal to lakes, ponds, and man-made 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 or spring tides, nor vernally wet areas where soils are not hydric.

According to the LCP, San Mateo County "wetlands typically contain the following plants: cordgrass, pickleweed, jaumea, frankenia, marsh mint, tule, bulrush, narrow-leaf cattail, broadleaf cattail, pacific silverweed, salt rush, and bog rush. To qualify, a wetland must contain at least a 50% cover of some combination of these plants, unless it is a mudflat."

Additionally, the LCP definition of sensitive habitats includes all perennial and intermittent streams and their tributaries, as well as, but not limited to, riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs, and habitats supporting rare, endangered, and unique species (County of San Mateo 2013).

Although none of the plant species described as typical wetland species in the LCP are present within the project area, other plant species considered to be wetland vegetation based federal guidelines (Lichvar, et. al. 2014) do occur. A stand of spreading rush (*Juncus patens*), approximately 1,500 square feet in area, occurs in the vicinity of the proposed water storage tank site (Appendix A, Figure 3). The spreading rush stand was roughly estimated to support approximately 50% cover of spreading rush during the wetland delineation field survey conducted on November 12, 2014 (Appendix E). Although this native species is often seen in dry soil conditions, it is also encountered in moist soil conditions. The indicator status of spreading rush is facultative wetland (FACW), meaning it usually occurs in wetlands (estimated probability 67%-99%), but is sometimes found in non-wetlands (Lichvar, et. al. 2014). Other native wetland species include Pacific rush (*Juncus effuses* var. *pacificus*) and Harford's sedge (*Carex harfordii*), which are identified as obligate (OBL) wetland plants, meaning they almost always occur in wetlands. Non-native facultative (FAC) and FACW species include cut-leaf plantain (*Plantago coronopus*) and Italian ryegrass (*Festuca perennis*).

The County, under the San Mateo County LCP, and following the California Coastal Commission guidelines, has the discretion to identify any feature as a wetland if it satisfies just one of the three wetland parameters including wetland hydrology, wetland soils, or a preponderance of wetland vegetation. As such, these features will likely fall under the jurisdiction of the California Coastal Commission under the auspices of the San Mateo County LCP because they are clearly dominated by wetland plant species. However, it is not anticipated that this wetland will fall under the jurisdiction of the U.S. Army Corps of Engineers or the San Francisco Bay Regional Water Quality Control Board given the absence of wetland hydrology and wetland soils in the project area.

A small, ephemeral drainage swale is present along the western perimeter of the construction site (Appendix A, Figure 2). Vegetation within and around the drainage swale include coyote brush (*Baccharis pilularis*), coffeeberry (*Frangula californica*), wax myrtle (*Morella californica*), native and non-native grasses, spreading rush, bracken fern (*Pteridium aquilinum*), and ruderal species. The swale originates in the northern part of the site and consists of a low-gradient, very shallow, somewhat poorly defined channel with very low banks generally no more than a few inches high. The channel is approximately 3 feet wide on average. Minor scouring erosion with the channel is discontinuous and very shallow, indicating that the swale supports only ephemeral, seasonal flow events. Within the channel, there is no evidence of surface seepage of groundwater (Appendix E). An historic aerial photograph (Appendix E, Figure 3) indicates that the area around the head of the swale was heavily disturbed by quarry grading activities. The drainage swale likely falls under the jurisdiction of the USACE and other regulatory agencies as Waters of the U.S. based on observable field characteristics including a defined channel, scouring, and minor sedimentary deposits (Appendix E).

The swale trends in a southerly direction before emptying into the Quarry Pond, which is largely open water with dense emergent vegetation, primarily arroyo willow (*Salix lasiolepis*), cattails (*Typha spp.)*, and bulrush (*Schoenoplectus californicus*).

Although the proposed work area consists of minimal habitat value for semi-aquatic species, adjacent riparian/wetland habitats could potentially be used as a foraging and breeding areas by CRLF, SFGS, and WPT. The drainages could also be used as a potential migration corridor for CRLF and SFGS, since additional potential breeding ponds exist within ½ mile of the project site. SFDW nests are expected to be present in the riparian/coastal scrub habitats around the Quarry Pond and adjacent to the access road. Although riparian and coastal scrub habitats occur adjacent to the project site, work will not extend into these habitats.

Disturbance associated with installation of the new water storage tank would result in permanent and temporary direct and indirect impacts to 0.03 acres of San Mateo County LCP jurisdictional wetland habitat.

Coastal Scrub

The slopes within the project area are vegetated with a low shrub intermixed with grassy meadow dominated habitat containing species consistent with coastal scrub, such as coyote brush (*Baccharis pilularis*), poison oak, sticky monkeyflower (*Mimulus aurantiacus*), and annual native and non-native grasses (unidentified). Coastal scrub provides habitat for an abundance of wildlife species, such as California quail, deer, and brush rabbit.

Photo 1 – Photo of project area looking northwest, showing proposed new storage tank and well location, staging and material storage area, and proposed wetland mitigation site. Access road locations are indicated by dashed lines. The Quarry Pond is immediately to the left of the photo.

Photo 2 – Photo of project site, including: staging and temporary material storage area (foreground), existing chlorine building and water storage tank (background), proposed location of new water storage tank (right of existing tank), and proposed location of new well (in front of existing tank).

Photo 3 – Photo of existing water storage tank (left), gravel access road to the existing wells uphill from the tank location (right), and site of the proposed new 140,000 gallon water tank (middle). The adjacent ephemeral drainage swale flows in the approximate location of the arrow shown in the above photo.

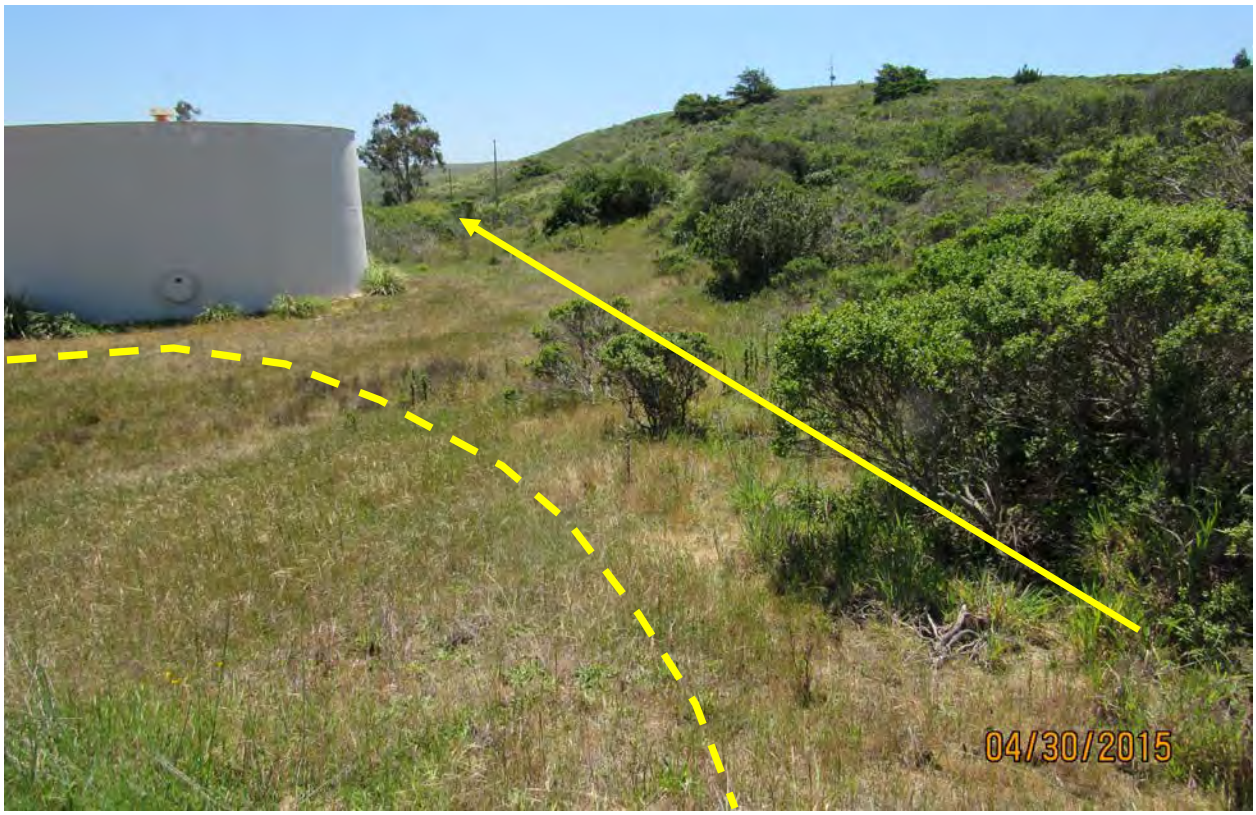

Photo 4 – Photo of ephemeral drainage channel (solid arrow) adjacent to the proposed new storage tank location (dashed line). Note – drainage channel flows directly to the Quarry Pond, which is located adjacent to the trees shown in the photo background more than 200-feet from the construction area.

Photo 5 – Photo of paved access road from Bean Hollow Road to the well and tank construction site. A vegetated ditch runs parallel to this road, transporting stormwater to Butano Creek located downhill from the project area.

Photo 6 – Photo of gravel access road from existing/proposed storage tank site to existing water supply wells at the top of the adjacent ridge.

Photo 7 – Photo of existing water supply well uphill of the existing and proposed storage tanks. Security (chain-link) fencing will be installed around both wells utilizing hand tools and a small auger.

Table 1- Plant Species Observed within and Adjacent to the Pescadero Water Supply and Sustainability Project Site.

(Nomenclature follows Jepson 1993 or Jepson Interchange Taxon Report)

Common Name	***Scientific Name***	**Wetland Status**
Bird's-foot trefoil*	*Lotus corniculatus*	FAC
Blue blossom	*Ceanothus thyrsiflorus*	Not Listed
Blue wild rye	*Elymus glaucus* ssp. *glaucus*	FACU
Bracken fern	*Pteridium aquilinum*	FACU
Bristly ox-tongue*	*Helminthotheca echioides*	Not Listed
California blackberry	*Rubus ursinus*	FACW
California coffeeberry	*Frangula californica*	Not Listed
California oatgrass	*Danthonia californica*	FACU
Coast tarweed	*Madia sativa*	Not Listed
Coyote brush	*Baccharis pilularis*	Not Listed
Crane's bill*	*Geranium molle*	Not Listed
Crimson clover*	*Trifolium incarnatum*	Not Listed
Cut-leaved plantain*	*Plantago coronopus*	FACW
English plantain*	*Plantago lanceolata*	FAC
Flax*	*Linum bienne*	Not Listed
Harding grass*	*Phalaris aquatica*	FACU
Harford's sedge	*Carex harfordia*	OBL
Italian ryegrass*	*Festuca perennis*	FAC
Italian thistle*	*Carduus pycnocephalus*	Not Listed
Jubata grass*	*Cortaderia jubata*	FACU
Lupine	*Lupinus* spp.	
Pacific rush	*Juncus effuses* var. *pacificus*	FACW
Rattlesnake grass*	*Briza maxima*	Not Listed
Rip-gut brome*	*Bromus diandrus*	Not Listed
Rough cat's ear*	*Hypochaeris radicata*	FACU
Sheep sorrel*	*Rumex acetosella*	FACU
Soft chess*	*Bromus hordeaceus*	FACU
Spreading rush	*Juncus patens*	FACW
Sweet fennel*	*Foeniculum vulgare*	Not Listed
Teasel	*Dipsacus fullonum*	FAC
Thistle*	Unidentified	
Wax myrtle	*Morella californica*	FACW

Table 1- Plant Species Observed within and Adjacent to the Pescadero Water Supply and Sustainability Project Site.

(Nomenclature follows Jepson 1993 or Jepson Interchange Taxon Report)

Common Name	***Scientific Name***	**Wetland Status**
Wild oat*	*Avena fatua*	Not Listed
Yarrow	*Achillea millefolium*	FACU

Notes:

OBL – Obligative Wetland – Almost always is a hydrophyte, rarely in uplands

FACW – Facultative Wetland – Usually is a hydrophyte but occasionally found in uplands

FAC – Facultative – Commonly occurs as either a hydrophyte or non-hydrophyte

FACU – Facultative Upland – Occasionally is a hydrophyte but usually occurs in uplands

*Denotes a non-native or naturalized species.

Table 2 - Animal Species Observed within and Adjacent to the Pescadero Water Supply and Sustainability Project Site.

Common Name	***Scientific Name***
American crow	*Corvus brachyrhynchos*
Barn swallow	*Hirundo rustica*
California quail	*Callipepla californica*
Dark-eyed junco	*Junco hyemalis*
House finch	*Carpodacus mexicanus*
Killdeer	*Charadrius vociferus*
White-tailed kite	*Elanus leucurus*
American bullfrog	*Lithobates catesbeianus*
California red-legged frog	*Rana draytonii*
Brush rabbit	*Sylvilagus bachmani*

9. Direct and Indirect Impacts to Biological Resources:

The proposed project has been designed to ensure that potential impacts can be avoided or minimized through appropriate prevention measures or mitigated through compensatory measures. The following is a discussion of the potential impacts to biological resources and the County best management practices and Project conservation measures that will be undertaken by the County to ensure no significant impacts to these biological resources.

The total footprint of potential ground disturbance due to Project construction consists of approximately 0.60 acres, including 0.03 acres of San Mateo County Local Coastal Program (LCP) jurisdictional seasonal wetland at the proposed new water storage tank site and 0.34 acres of ruderal/disturbed upland in the well and storage tank construction site and fence installation areas. Habitat types occurring within or adjacent to the Project area, as well as impact type (temporary or permanent) are listed in Table 3, below, and displayed in Figure 3 (Appendix A).

Table 3 - Temporary and Permanent Habitat Impacts and Proposed Mitigation

Habitat Type	Impact Type	Impact Area (acres)	Proposed Mitigation	Mitigation Area (acres)
Seasonal Wetland (LCP Jurisdictional)	Permanent	0.03	Creation of wetland habitat from upland habitat	0.10
Grassland/Ruderal Upland	Permanent	0.10	None	N/A
Grassland/Ruderal Upland	Temporary	0.24	None	N/A
Disturbed Gravel Pad	Temporary	0.23	None	N/A
Total Impact Area		**0.60**	**Total Mitigation Area**	**0.10**

The following is a discussion of the potential impacts to biological resources and the preventative conservation measures and best management practices that will be undertaken by the County to ensure no significant impact to these biological resources.

<u>Water Quality Impacts to Aquatic Species</u>

As discussed in Section 10, steelhead and Coho are special status species of salmonids which potentially inhabit Butano Creek. In the absence of appropriate BMPs and protective measures, there is a potential for impacts to water quality. Water quality impacts to aquatic species will be prevented by project timing, the use of erosion control and containment BMPs, and off-site disposal of sludge and purge water. The project will be conducted between June 1 and October 31, when the adjacent drainage channels are typically dry and rainfall is absent. The use of erosion control and containment BMPs will eliminate the potential introduction of harmful pollutants into adjacent drainage channels, as well as Butano Creek. Additionally, all personnel involved in construction activities will be briefed by a qualified biologist on appropriate BMP selection and implementation, as well as other standard conservation measures outlined in the County of San Mateo Watershed Protection Program's *Maintenance Standards* (County, 2004).

Nesting Birds

Nesting birds (common and special status species), their eggs, and nests are protected by California Department of Fish and Game code (Section 3503, 3503.5, and 3513) and by the Migratory Bird Treaty Act of 1918, enforced by the USFWS. Potential nesting sites for many common and special status species of birds (e.g., California quail, bushtit, yellow warbler.) occur in the grassland, coastal scrub, and riparian habitats within and adjacent to the project site. To prevent potential impacts to nesting birds, project related activities will be scheduled outside of the typical nesting season (Feb 1 through Aug 31) or will be preceded by a nesting bird survey by a qualified biologist. If nesting birds are detected near the project site, a 100-foot exclusion zone (300-foot for raptors) will be established for protection. If the exclusion zone is located within the immediate work area, construction will be delayed until the young have fledged and left the nest.

Special Status Semi-Aquatic Animals

Special status semi-aquatic animals are species which have been designated as endangered, threatened, or a species of concern and inhabit permanent or seasonal aquatic habitats, such as SFGS, CRLF, and WPT. The Quarry Pond provides habitat for known occurrences of CRLF and potentially WPT. California red-legged frog and American bullfrog (*Lithobates catesbeianus*) were detected at the Quarry Pond during draining activities conducted in 2013 and 2014 with regulatory agency approval. San Francisco garter snake (SFGS) have been documented by Dr. Samuel McGinnis (McGinnis 1984) and Swaim Biological, Inc. (Swaim 2014) as occurring at various locations on the County property (APNs 086-180-060 and 086-160-060). Due to the sensitivity of SFGS information, observed locations cannot be listed. However, it is assumed that SFGS could be present within and adjacent to all waterbodies on the County property.

Additionally, several ponds occur on County or private land within the project vicinity, and could be potential breeding sites for SFGS, CRLF, and WPT. As discussed in Section 10, the project site may provide migratory pathways where special status semi-aquatic animals are likely to occur. During breeding or wet seasons, the ditch immediately to the west of the proposed well and storage tank location could potentially be used as a migrational corridor or foraging area by these species.

Potential project related impacts to SFGS, CRLF, and WPT and their habitat will be prevented by project timing, the use of erosion control and containment BMPs, exclusionary fencing, construction monitoring and personnel training, as outlined in the County of San Mateo Watershed Protection Program's *Maintenance Standards* (County, 2004). The project will be conducted between July 15 and October 15, during the dry season when these semi-aquatic animals are less likely to be found in any portion of the project site. Erosion control and containment BMPs will be used to eliminate the potential introduction of pollutants into dry channel beds, which could degrade the aquatic habitat when flows resume. Exclusionary fencing will be installed around the construction area, staging area, and mitigation site under the direction of a qualified biologist. Additionally, all construction activities will be monitored on-site by a qualified biologist.

Wildlife

Potential project related impacts to wildlife include physical harm from equipment and visual disturbance of wildlife. Prior to the start of construction activities, a qualified biologist will brief crews on permit requirements, sensitive species identification, and appropriate BMPs and avoidance and minimization measures. The biologist will also conduct daily pre-construction wildlife surveys and closely monitor all construction activities to ensure that wildlife is not negatively impacted by the project.

Vegetation Disturbance

Disturbance of sparse, non-native ruderal vegetation in the immediate work areas to provide access during construction is unavoidable (Appendix A, Figure 3, Area of Impact). However, the removal of vegetation will be minimized to the maximum extent possible, and disturbed vegetation is anticipated to grow back within the season. A qualified biologist will be present during all construction activities to ensure that impacts to vegetation are minimized. When possible, vegetation will be trimmed as opposed to removed. No mature trees will be removed, but may be trimmed along the access road as needed. All heavy equipment will be operated from the existing graded areas to minimize impacts to vegetation. Any disturbed areas at the well drilling site or along the shoulder of the access road will be seeded with native plants and mulched with sterile rice straw to promote the growth of native vegetation and prevent erosion.

Special Status Plant Species

No sensitive plants were observed near the project site during the wetland delineation and biological surveys. Biological surveys were performed in March and April 2015, during peak blooming periods when special status plants were more easily identifiable, in order to maximize the likelihood of locating special status plant species [1]. Any special status plant species detected during subsequent site visits will be reported to the appropriate permitting agencies, and work in detected areas will not commence until it is determined that special status plants will not be impacted. Prior to construction activities, special status plants will be clearly marked/flagged or temporary construction fencing will be erected to designate the work area and delineate the areas to be avoided.

Riparian/Wetland Habitat

As previously discussed in this Section 8 and again in Section 10, the riparian/wetland habitat located along the perimeter of the Quarry Pond is potentially used by many common and sensitive species of

[1] California Department of Fish and Game. 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.

amphibians, reptiles, and birds. The Quarry Pond and adjacent drainage channels will be excluded from the work area by exclusionary fencing, maintaining an adequate buffer from these sensitive habitats. No construction work will take place within 100-feet of the Quarry Pond.

Minimization and avoidance measures will be taken to prevent impacts to the riparian/wetland habitat and wildlife that may utilize this habitat. A biologist will be on-site during all construction activities to supervise BMP implementation and to ensure that the habitat is not impacted. The project will be conducted in late summer and fall during the dry season when CRLF, SFGS, and WPT are least likely to be present. Erosion control and containment BMPs (i.e. installation of silt fencing, natural fiber tightly woven straw rolls, straw bales, and street sweeping) will be implemented to prevent water quality impacts. No trees will be removed, but may be trimmed as needed to provide access along the road. All heavy equipment will be operated from the previously graded and disturbed areas to minimize impacts to riparian/wetland vegetation and wildlife.

As discussed in Sections 6 and 9, above, disturbance associated with installation of the new water storage tank would result in permanent and temporary direct and indirect impacts to 0.03 acres of LCP jurisdictional wetland habitat. To mitigate for these impacts, the County proposes to convert nearby upland, ruderal habitat to wetland habitat by grading the site to create small depressions in which wetland plants, such as spreading rush (*Juncus patens*), will be installed. The proposed mitigation area is located adjacent to the existing Quarry Pond and could provide additional wetland habitat for CRLF and SFGS. A Habitat Mitigation and Monitoring Plan (HMMP) will be prepared prior to project construction.

10. Special Status Species:

Table 3, below, lists the special status species that have been known to or have a potential to occur within the project vicinity. Additionally, presence of each species within ½ mile of the site and the likelihood of potential impacts to each species based on the proposed project are given. Brief descriptions of those special status species that are more likely to occur at the project site follow Table 3. Impacts to special status plant species are not anticipated as there were no occurrences reported within ½ mile of the project sites, none were observed during site surveys, and additional surveys will be conducted during peak blooming periods in order to maximize the likelihood of locating any within the immediate work areas.

Table 4 - Special Status Species Known to or Have a Potential to Occur within the Project Vicinity, Their Presence within ½ Mile of the Project Site, and Their Likeliness to be Impacted by the Project.

Common Name *Scientific Name*	**Federal Status**	**State Status**	**CNPS Status[2]**	**Habitat Description**	**Species Observed on Project Site (Y/N)**	**CNDDB[1] Occurrence within ½ Mile of Project Site (Y/N)**	**Likelihood of Species Impacted by Project**
Fish							
Coho Salmon, Central California Coast ESU *Oncorhynchus kisutch*	T, X	E	N/A	Anadromous - Historically found in short low gradient coastal drainages.	N	Y	None – No suitable habitat present at project site and BMPs will be implemented to prevent water quality impacts.
Steelhead, Central California Coast ESU *O. mykiss*	T, X	None	N/A	Anadromous - Found in coastal and inland streams.	N	Y	None – No suitable habitat present at project site and BMPs will be implemented to prevent water quality impacts.
Amphibians							
California red-legged frog *Rana aurora draytonii*	T X	DFW: SSC	N/A	Marshes, ponds, and slow water sections of streams. Breeding Nov-Apr.	Y	Y, Critical Habitat	Low- See Discussion
Reptiles							
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	E	E, DFW: Fully Prote-cted	N/A	Forages on land or in quiet pools, prefers small mammal burrows at night. Breeding spring to fall. May overwinter in upland areas away from water.	Y	Y	Low- See Discussion

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Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Status[2]**	**Habitat Description**	**Species Observed on Project Site (Y/N)**	**CNDDB[1] Occurrence within ½ Mile of Project Site (Y/N)**	**Likelihood of Species Impacted by Project**
Western pond turtle *Emys (=Clemmys) marmorata*	None	DFW: SSC	N/A	Slow moving streams or ponds; reproduce in nearby upland areas.	N	N	Low- See Discussion
Birds							
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	None	DFW: SSC	N/A	Breeds in freshwater marsh, brackish marsh, and wooded swamp habitat. Winters in salt marsh habitat. Breeding season Mar-Jul.	N	N, (Within 1 Mile)	Very Low – See Discussion.
Mammals							
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	None	DFW: SSC	N/A	Typically nest in coastal scrub, chaparral, oak woodland, and riparian habitats. Build mounded stick lodges up to 8-feet tall.	N	N	Very Low – See Discussion.
Insects							
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	E	None	N/A	Inhabits coastal dunes, coastal prairie, and coastal scrub to 1,000 feet elevation and 3 miles inland. Critical factor includes presence of larval host plant, *Viola adunca*	N	Y	None – Larval host plant (*Viola adunca)* not observed in the immediate work area and the adjacent habitat will not be disturbed.
Plants							
Blasdale's bent grass *Agrostis blasdalei*	None	None	1B	Found in coastal bluff scrub, coastal dunes, and coastal prairie.	N	N	None- Blasdale's bent grass not observed in the immediate work area and the adjacent coastal scrub habitat will not be disturbed.

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Common Name *Scientific Name*	**Federal Status**	**State Status**	**CNPS Status[2]**	**Habitat Description**	**Species Observed on Project Site (Y/N)**	**CNDDB[1] Occurrence within ½ Mile of Project Site (Y/N)**	**Likelihood of Species Impacted by Project**
Bent-flowered fiddleneck *Amsinckia lunaris*	None	None	1B	Found in coastal bluff scrub, cismontane woodland, and grasslands. Blooms Mar-Jun.			None – Bent-flowered fiddleneck not observed in the immediate work area during blooming period surveys.
Santa Cruz Manzanita *Arctostaphylos andersonii*	None	None	1B	Found in broadleaved upland forest, chaparral, and north coast coniferous forest often associated with openings and edges. Blooms Nov-May.	N	N	None- No habitat available within project site.
Schreiber's manzanita *Arctostaphylos glutinosa*	None	None	1B	Found in chaparral and closed-cone coniferous forest. Blooms Nov-Apr.			None- No habitat available within project site.
Kings Mountain manzanita *Arctostaphylos regismontana*	None	None	1B	Found in broadleaved upland forest, chaparral, and coniferous forest. Blooms Jan-Apr.	N	N	None- No habitat available within project site.
Coastal marsh milk-vetch *Astragalus pycnostachyus* var. *pycnostachyus*	None	None	1B	Found in coastal dunes, coastal scrub, and marshes and swamps (coastal salt, streamsides). Blooms Apr-Oct.	N	Y	None – Coastal marsh milk-vetch not observed in the immediate work area and the adjacent coastal scrub habitat will not be disturbed.
Round-leaved filaree *California macrophylla*	None	None	1B	Found in cismontane woodland and valley and foothill grasslands. Blooms Mar-May.	N	Y	None – Round leaved filaree not observed in the immediate work area during blooming period surveys.
Franciscan thistle *Cirsium andrewsii*	None	None	1B	Found in broadleaved upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Blooms Mar-Jul.			None – Franciscan thistle not observed in the immediate work area during blooming period surveys.
San Francisco collinsia *Collinsia multicolor*	None	None	1B	Found in closed-cone coniferous forest and coastal scrub. Blooms Mar-May.	N	N	None – San Francisco collinsia not observed in the immediate work area and the adjacent coastal scrub habitat will not be disturbed.

Table 4 - Special Status Species Known to or Have a Potential to Occur within the Project Vicinity, Their Presence within ½ Mile of the Project Site, and Their Likeliness to be Impacted by the Project.

Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Status[2]**	**Habitat Description**	**Species Observed on Project Site (Y/N)**	**CNDDB[1] Occurrence within ½ Mile of Project Site (Y/N)**	**Likelihood of Species Impacted by Project**
Western leatherwood *Dirca occidentalis*	None	None	1B	Found in chaparral, broadleafed upland forests, coniferous forests, riparian forests, and riparian woodlands. Blooms Jan-Mar.	N	N	None – Western leatherwood not observed in the immediate work area and the adjacent riparian habitat will not be disturbed.
San Mateo woolly sunflower *Eriophyllum latilobum*	E	E	1B	Found in cismontane woodland often on serpentinite, on road cuts. Blooms May-Jun.	N	N	None – San Mateo woolly sunflower not observed in the immediate work area during blooming period surveys.
Sand-loving wallflower *Erysimum ammophilum*	None	None	1B	Found in chaparral, coastal dunes, and coastal scrub often associated with sandy openings. Blooms Feb-Jun.	N	N	None – Sand-loving wallflower not observed in the immediate work area and the adjacent coastal scrub habitat will not be disturbed.
Minute pocket moss *Fissidens pauperculus*	None	None	1B	Moss growing on damp soil along the coast and in dry streambeds and stream banks.	N	N	None- No habitat available within project site.
Fragrant fritillary *Fritillaria liliacea*	None	None	1B	Found in cismontane woodland, coastal prairie, coastal scrub, and grasslands often in serpentinite. Blooms Feb-Apr.	N	N	None – Fragrant fritillary not observed in the immediate work area and the adjacent coastal scrub habitat will not be disturbed.
Butano Ridge cypress *Hesperocyparis abramsiana* var. *butanoensis*	E	E	1B	Evergreen tree known only from Butano Ridge of the Santa Cruz Mountains. Found in closed-cone coniferous forest, chaparral, and lower montane coniferous forest.	N	N	None – Butano Ridge cypress not found in the project area and no trees will be disturbed.
Kellogg's horkelia *Horkelia cuneata* ssp. *sericea*	None	None	1B	Found in closed-cone coniferous forest, chaparral (maritime), and coastal scrub. Blooms Apr-Sep.	N	N	None – Kellogg's horkelia not observed in the immediate work area and the adjacent coastal scrub habitat will not be disturbed.

Table 4 - Special Status Species Known to or Have a Potential to Occur within the Project Vicinity, Their Presence within ½ Mile of the Project Site, and Their Likeliness to be Impacted by the Project.

Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Status[2]**	**Habitat Description**	**Species Observed on Project Site (Y/N)**	**CNDDB[1] Occurrence within ½ Mile of Project Site (Y/N)**	**Likelihood of Species Impacted by Project**
Point Reyes horkelia *Horkelia marinensis*	None	None	1B	Found in coastal dunes, coastal prairie, and coastal scrub. Blooms May-Sep.	N	N	None – Point Reyes horkelia not observed in the immediate work area during blooming period surveys.
Perennial goldfields *Lasthenia californica ssp. macrantha*	None	None	1B	Found in coastal bluff scrub, coastal dunes, and coastal scrub. Blooms Jan-Nov.	N	N	None – Perennial goldfields not observed in the immediate work area and the adjacent coastal scrub habitat will not be disturbed.
Coast yellow leptosiphon *Leptosiphon croceus*	None	None	1B	Found in coastal bluff scrub and coastal prairie. Blooms Apr-May.	N	N	None – Coast yellow leptosiphon not observed in the immediate work area during blooming period surveys.
Rose leptosiphon *Leptosiphon rosaceus*	None	None	1B	Found in scrub habitat on coastal bluffs. Blooms Apr-Jul.	N	N	None – Rose leptosiphon not observed in the immediate work area and the adjacent coastal scrub habitat will not be disturbed.
Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	None	E	1B	Found in coastal prairie, meadows, seeps, marshes, swamps, and vernal pools. Blooms Mar-May.	N	Y	None – Point Reyes meadofoam not observed in the immediate work area during blooming period surveys.
Arcuate bush mallow *Malacothamnus arcuatus*	None	None	1B	Found in chaparral and cismontane woodland. Blooms Apr-Sep.	N	N	None – No habitat available within project site.
Marsh microseris *Microseris paludosa*	None	None	1B	Found within coniferous forests, cismontane woodlands, coastal scrub, and moist annual grasslands. Blooms Apr-Jun.	N	N	None – Marsh microseris not observed in the immediate work area during blooming period surveys.

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Woodland woolythreads *Monolopia gracilens*	None	None	1B	Found in mixed evergreen forest, redwood forest, and chaparral with a weak affinity to serpentine soil. Blooms Mar-Jul.	N	N	None – No habitat available within project site.
Monterey pine *Pinus radiata*	None	None	1B	Found in cismontane woodland and coniferous forest.	N	N	None – Occurs as a landscape plant. Adjacent habitat will not be disturbed.
Choris's popcorn-flower *Plagiobothrys chorisianus var. chorisianus*	None	None	1B	Found in chaparral, coastal scrub and coastal prairie habitats. Blooms Mar-Jun.	N	Y	None – Choris's popcorn flower not observed in the immediate work area during blooming period surveys.
San Francisco popcorn-flower *Plagiobothrys diffusus*	None	E	1B	Found in coastal prairie and grasslands. Blooms Mar-Jun.	N	N	None – San Francisco popcorn-flower not observed in the immediate work area during blooming period surveys.
Pine rose *Rosa pinetorum*	None	None	1B	Found in closed-cone coniferous forest and cismontane woodland. Blooms May-Jul.	N	N	None – No habitat available within project site.
Marin checkerbloom *Sidalcea hickmanii* spp. *viridis*	None	None	1B	Found in chaparral habitat. Endemic to serpentine soil. Blooms May-Jun.	N	N	None – No habitat available within project site.
San Francisco campion *Silene verecunda* ssp. *verecunda*	None	None	1B	Found in coastal bluff scrub, chaparral, coastal prairie, coastal scrub and grassland (sandy). Blooms Mar-Jun.	N	N	None – San Francisco campion not observed in the immediate work area during blooming period surveys.
Santa Cruz microseris *Stebbinsoseris decipiens*	None	None	1B	Found in forests, chaparral, coastal prairie, coastal scrub, and grasslands and open areas. Blooms Apr-May.	N	N	None – Santa Cruz microseris not observed in the immediate work area during blooming period surveys.

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Santa Cruz clover *Trifolium buckwestiorum*	None	None	1B	Found in broadleafed upland forest, cismontane woodland, and coastal prairie. Blooms Apr-Oct.	N	N	None – Santa Cruz clover not observed in the immediate work area during blooming period surveys.

Notes:

[1] California Natural Diversity Database (CNDDB), Wildlife & Habitat Data Analysis Branch, Department of Fish and Wildlife Government Version - Information dated June 2, 2015.

[2] California Native Plant Society (CNPS). 2015. Inventory of Rare and Endangered Plants (online edition v8-02). California Native Plant Society. Sacramento, CA. Accessed on June 30, 2015 from http://www.rareplants.cnps.org.

Species Status Abbreviations:

(E) Endangered

(T) Threatened

(P) Proposed

(CA) Listed by the State of California, but not the US Fish and Wildlife Service

(X) Critical Habitat designated for this species

(PX) Proposed Critical Habitat

(DFW: SSC) California Species of Special Concern

CNPS Status Abbreviations:

1B Rare, threatened, or endangered in California and elsewhere.

2 Rare, threatened, or endangered in California, but more common elsewhere

Coho Salmon and Steelhead

Coho and steelhead are two listed species of salmonids which historically inhabited many of the coastal streams of San Mateo County, including both Pescadero and Butano Creeks. The steelhead Central California Coast Evolutionarily Significant Unit (ESU) is listed as a Threatened species under the Federal Endangered Species Act (FESA), and the Coho salmon Central California Coast ESU is listed as an Endangered species under the FESA and the California Endangered Species Act (CESA). Pescadero Creek and Butano Creek are listed as critical habitat for steelhead. Coho occur in Pescadero Creek with potential historical suitable habitat found in the Butano Creek system (NMFS 2010). While the project work area and access road do not contain habitat for either species, the project site ultimately drains into Butano Creek, located approximately 0.3 miles from the proposed new well and tank location (Appendix A, Figure 2). As a precaution, BMPs and conservation measures to prevent water quality impacts to Butano Creek will be implemented to ensure these species and their habitat are not impacted by the proposed project.

San Francisco Garter Snake

The SFGS is listed as an Endangered species under the FESA and the CESA. Additionally, the California Department of Fish and Wildlife (CDFW) lists the species as a Fully Protected Species. These semi-aquatic garter snakes are often found hunting in ponds and slow moving streams and living in abandoned rodent burrows (USFWS 2006). The CNDDB cites multiple occurrences of SFGS from within the Pigeon Point, Franklin Point, San Gregorio, and La Honda quadrangles, including three within ½ mile of the project site (CNDDB 2015).

As discussed in Section 9, above, SFGS have been documented by Dr. Samuel McGinnis (McGinnis 1984) and Swaim Biological, Inc. (Swaim 2014) as occurring at various locations on the County property (APNs 086-180-060 and 086-160-060). Due to the sensitivity of SFGS information, observed locations cannot be listed. However, it is assumed that SFGS could be present within and adjacent to all waterbodies on the County property. San Francisco garter snakes are likely to use the area around the Quarry Pond for foraging and dispersal. Further, this species can disperse into surrounding upland habitats during summer to prey on amphibians aestivating in small mammal burrows (Barry 1993, 1994). SFGS could potentially forage on amphibians in nearby ponds and disperse and/or aestivate throughout the project area. However, due to the sparse vegetative cover, SFGS are likely to occur in the construction, staging, and soil disposal areas only infrequently. In the absence of avoidance and minimization measures, direct mortality of SFGS could result from ground disturbance and equipment operation associated with water storage tank construction and well drilling activities. As a precaution, BMPs and conservation measures, including the installation of exclusion fencing around the perimeter of the work area and construction monitoring by a qualified biologist, will be implemented to ensure the species and its habitat are not impacted by the proposed project.

California Red-Legged Frog

The CRLF is listed as Threatened under FESA and as a Species of Special Concern by the CDFW. CRLFs typically inhabit ponds and slow moving streams with a well-developed riparian canopy (CDFG, 2009). The entire project site is within U.S. Fish and Wildlife Service (USFWS) designated CRLF critical habitat. The CNDDB cites multiple occurrences of CRLFs from within the Pigeon Point, Franklin Point, San Gregorio, and La Honda quadrangles, including two within 1 mile of the project site (CNDDB, 2012). As discussed in Section 9, above, the Quarry Pond provides habitat for known occurrences of CRLF and potentially WPT. California red-legged frog and American bullfrog were detected at the Quarry Pond during draining activities conducted in 2013 and 2014 with regulatory agency approval. Although the work area and access road surface do not contain habitat for CRLF, suitable pond and upland habitats exist within 300 feet of the project area. Likewise, the drainage channels within the project area are potential migrational corridor routes between areas where CRLF are known to occur or may potentially occur. As a precaution, BMPs and conservation measures, including the installation of exclusion fencing around the perimeter of the work area and construction monitoring by a qualified biologist, will be implemented to ensure the species and its habitat are not impacted by the proposed project.

Western Pond Turtle

The WPT is listed as a Species of Special Concern by the CDFW. WPTs typically inhabit ponds, lakes, marshes, and slow moving streams (CDFG, 2009). The CNDDB does not report any occurrences of WPT within 3 miles of the project location (CNDDB 2015). Although the work area and access road surface do not contain habitat for WPT, suitable pond and marsh habitats exist in the Quarry Pond within 300 feet of the new well and water tank location. Likewise, the drainage channels within the project area are potential

migrational corridor routes between areas where WPT are known to occur or may potentially occur. No WPTs were observed within the project site during the surveys. Additionally, no WPT were detected during pond draining activities in 2012 (Swaim 2013). As a precaution, BMPs and conservation measures, including the installation of exclusion fencing around the perimeter of the work area and construction monitoring by a qualified biologist, will be implemented to ensure the species and its habitat are not impacted by the proposed project.

San Francisco Dusky-footed Woodrat

The SFDW is a medium-sized rodent listed as a Species of Special Concern by the CDFW, and is a subspecies of the dusky-footed woodrat. Woodrats are mostly nocturnal and occupy stick houses up to 8 feet tall. Their nests occur within the stick houses, and their breeding season extends from December to September (CDFG 2009). SFDW is widely distributed in San Mateo County and is expected to occur in the coastal scrub and riparian habitats within the project vicinity. As a precaution, BMPs and conservation measures, including clear flagging and avoidance of known woodrat houses and minimized removal and trimming of riparian and wetland vegetation, will be implemented to ensure that the species is not impacted by the proposed project. No woodrat nests were observed in the work area or along the access road during the site surveys.

White-tailed Kite

The white-tailed kite is listed as a Fully Protected Species by the CDFW. The white-tailed kite ranges over large areas and forages on small rodents within annual grasslands (Robbins 1983). The CNDDB does not report any occurrences of white-tailed kite within 3 miles of the project location (CNDDB 2015). However, white-tailed kites have been previously observed foraging in the project vicinity by the County biologist. Potential nesting sites occur in the eucalyptus trees at the north end of the Quarry Pond, located approximately 350-feet from the project site. Work will be scheduled to take place outside of the typical breeding season or will be preceeded by a nesting bird survey by a qualified biologist. Therefore, impacts to white-tailed kites are not anticipated. As a precaution, BMPs and conservation measures including Project timing and a pre-construction nesting bird survey will be implemented to ensure that the species and its habitat are not impacted by the proposed project. If nesting white-tailed kites are detected, a 200-foot exclusion zone will be established for protection. If the exclusion zone is located within the immediate work area, construction will be delayed until the young have fledged and left the nest. No white-tailed kites were observed within the project site during the surveys.

Pallid Bat

Pallid bat (*Antrozous pallidus*) is listed as a species of special concern (SSC) by the CDFW. This species is found throughout California inhabiting low elevation rocky arid deserts and Canyonlands, shrub-steppe grasslands, and higher elevation coniferous forests. Pallid bats roost alone, in small groups (2 to 20 bats), or gregariously (100s of individuals). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of coast redwoods, bole cavities of oaks, exfoliating valley oak bark, deciduous trees in riparian areas, fruit trees in orchards), and various human structures. They forage over open shrub-steppe grasslands, oak savannah grasslands, open pine forests, gravel roads, fruit orchards, and vineyards (Sherwin 2005). The documented CNDDB occurrence of pallid bat within a 3 mile radius of the project site was from several specimens collected in 1945 along Pescadero Creek Road near Newell Gulch, within forested habitat approximately 1.7 miles east of the project site (CNDDB 2015). Swaim Biological, Inc., observed large numbers of bats (species unknown) foraging at the Quarry

Pond during nighttime wildlife surveys conducted in fall of 2012 (Swaim 2013).

Although pallid bats have the potential to utilize grassland habitats within the project area and riparian habitats adjacent to the project area for foraging, owing to the absence of cavities or deep bark crevices in the trees in the project area, the species is not expected to roost in the project area. Activities associated with the project would temporarily affect up to 0.37 acre of potential foraging habitat for pallid bats. However, this species is not expected to roost in the project area, and therefore no individuals would be injured or killed during project implementation. With implementation of BMPs and conservation measures, impacts on this species would not be significant.

Saltmarsh Common Yellowthroat

The saltmarsh common yellowthroat is a small warbler listed as a Species of Special Concern by the CDFW, and is a subspecies of the common yellowthroat. The saltmarsh common yellowthroat will utilize moist to upland habitats, including isolated patches of habitat such as swales and seeps. Known to breed in both brackish and freshwater marshes from mid-March to late July, yellowthroats typically build nests near the ground in grasses, herbaceous vegetation, cattails, tules, and some shrubs (Evens 2008). The CNDDB cites one possible occurrence of saltmarsh common yellowthroat in Pescadero Marsh within one mile of the project site (CNDDB 2015) (Appendix A, Figure 4). This species has the potential to occur within the riparian and coastal scrub habitats found within the project vicinity. Work will be scheduled to take place outside of the typical breeding season or will be preceeded by a nesting bird survey by a qualified biologist. Therefore, impacts to saltmarsh common yellowthroat are not anticipated. As a precaution, BMPs and conservation measures including project timing, a pre-construction nesting bird survey, and minimized removal and trimming of riparian and wetland vegetation will be implemented to ensure that the species and its habitat are not impacted by the proposed project. If nesting saltmarsh common yellowthroat are detected, a 50-foot exclusion zone will be established for protection. If the exclusion zone is located within the immediate work area, construction will be delayed until the young have fledged and left the nest. No saltmarsh common yellowthroat were observed within the project site during the surveys.

Choris' Popcorn-Flower

The CNPS lists Choris' popcorn-flower as a 1B species, meaning that it is rare, threatened, or endangered in California and elsewhere. Choris' popcorn-flower blooms from March through June and is typically found in chaparral, coastal scrub, and coastal prairie habitat (CNPS 2015). This species has been reported within 1/2 mile of the project site within the vicinity of Pescadero Marsh. Within the project area, suitable habitat may exist within the ruderal vegetation at the project site and within the adjacent coastal scrub habitat. Work will not extend into the adjacent coastal scrub habitat. Choris' popcorn-flower was not detected during the site surveys. Additional surveys will be conducted in April and May, 2016, during Choris' popcorn-flower's blooming period, and any observed plants will be excluded from the work area. Thus, this species will not be impacted by the proposed project.

Coastal Marsh Milk-Vetch

The CNPS lists coastal marsh milk-vetch as a 1B species, meaning that it is rare, threatened, or endangered in California and elsewhere. Coastal marsh milk-vetch blooms from April through October and is typically found within coastal salt marshes, swamps, streamsides, coastal dunes, and coastal scrub habitat (CNPS 2015). Several occurrences of coastal marsh milk-vetch have been reported within a 3 mile

radius of the project Site (CNDDB 2015). Within the project area, suitable habitat for coastal marsh milk-vetch may exist along the margins of adjacent drainage channels and coastal scrub habitats. Work will not take extend into the adjacent riparian, marsh, and coastal scrub habitats. Coastal marsh milk-vetch was not detected during the site surveys. Additional surveys will be conducted in April and May, 2016, during coastal marsh milk-vetch's blooming period, and any observed plants will be excluded from the work area. Thus, this species will not be impacted by the proposed project.

Round-Leaved Filaree

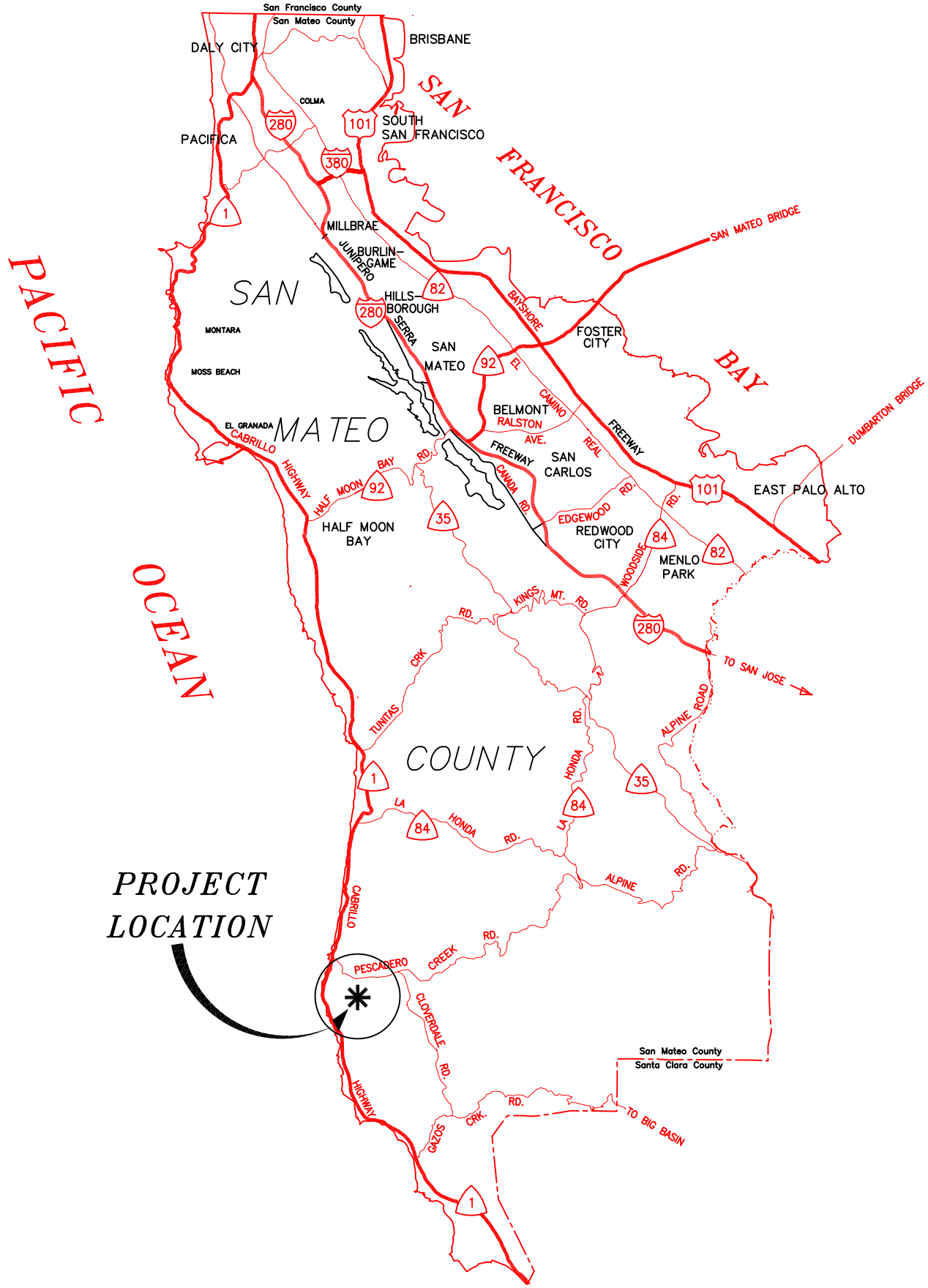
The CNPS lists round-leaved filaree as a 1B species, meaning that it is rare, threatened, or endangered in California and elsewhere. Round-leaved filaree blooms from March through May and is typically found within cismontane woodland and valley and foothill grasslands habitats (CNPS 2012). This species was historically reported in the vicinity of Pescadero in 1896 (CNDDB 2015). Within the project site, suitable habitat may be present within the ruderal vegetation within the project area. Round-leaved filaree was not detected during the site surveys. Additional surveys will be conducted in April and May, 2016, during round-leaved filaree's blooming period, and any observed plants will be excluded from the work area. Thus, this species will not be impacted by the proposed project.

11. CERTIFICATION:

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation based on my inquiry of those individuals immediately responsible for obtaining the information, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

DATE: 10/30/2015 SIGNED: Mark Chan

Appendix A – Figures



FILENAME: G:\Users\utility\watershed_protection\PERMITS\WPS2013-002 Pescadero Water Supply Project\MAPS\Vicinity Map.dwg

COUNTY OF SAN MATEO PUBLIC WORKS	DESIGNED BY:	**PESCADERO WATER SUPPLY AND SUSTAINABILITY PROJECT**	SCALE: NONE
	CHECKED BY: EG		DATE: JUL 2015
	DRAWN BY: CF	**FIGURE 1: VICINITY MAP**	FILE NO: **1/XXXX**

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5TH FLOOR
REDWOOD CITY, CALIFORNIA 94063-1665

Pescadero Water Supply and Sustainability Project

Figure 2: Site Location Map

Project Site

Access Road

Streams

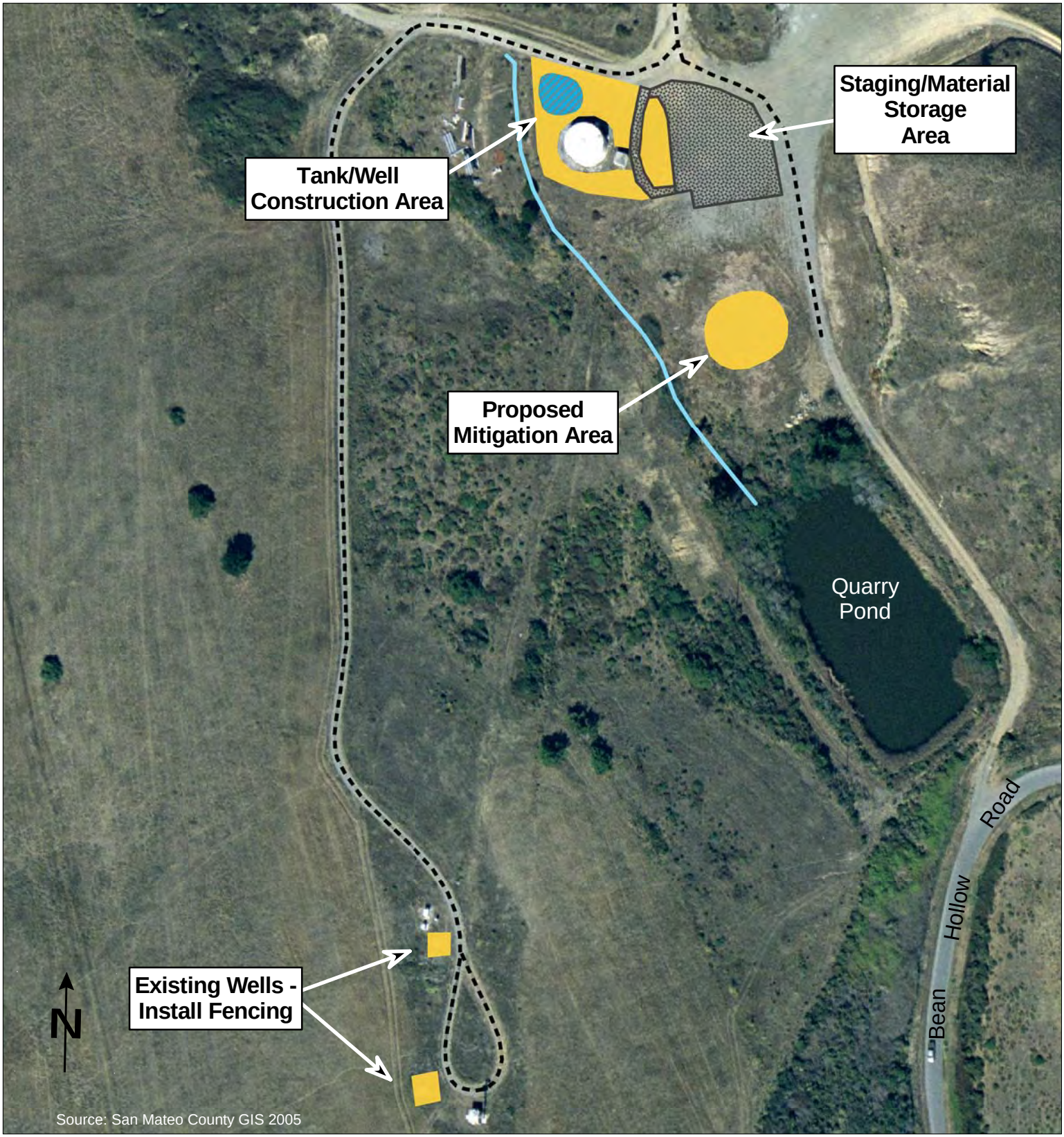
N

0 500 1000

Feet

June 30, 2015
County of San Mateo
Department of Public Works

G:\Users\utility\watershed_protection\PERMITS\WPS2013-002 Pescadero Water Supply Project\Maps/PescWater2.gws



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Pescadero Water Supply and Sustainability Project

Figure 3: Plant Communities in Project Area

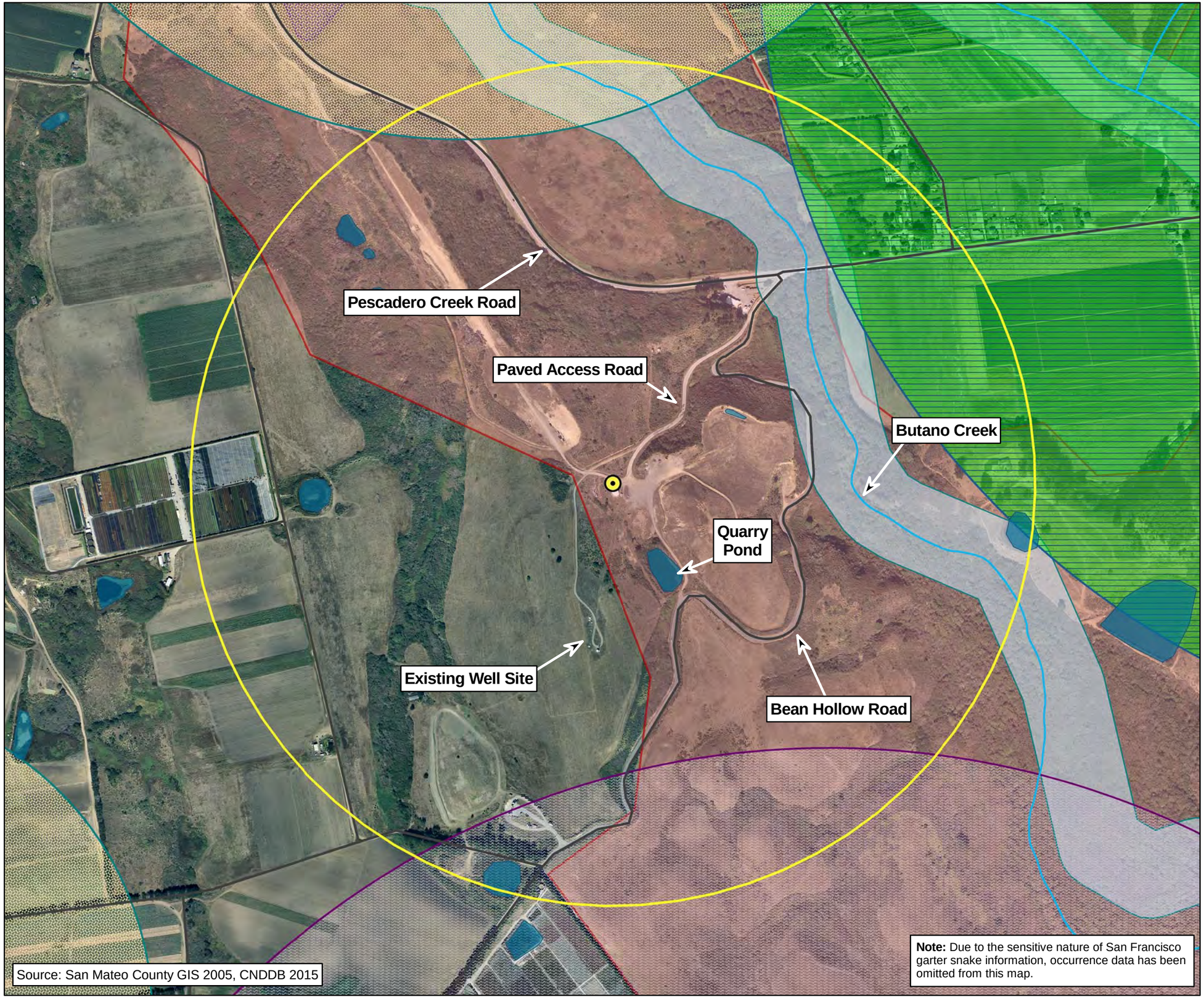
0 40 80 120 160 200
Feet

- Disturbed Gravel
- Grassland/Ruderal Upland
- Wetland (LCP Jurisdictional)
- Drainage Swale
- Access Road

July 21, 2015
County of San Mateo
Department of Public Works

Pescadero Water Supply and Sustainability Project

Figure 4: Special Status Species Occurrence Map



Source: San Mateo County GIS 2005, CNDDB 2015

Note: Due to the sensitive nature of San Francisco garter snake information, occurrence data has been omitted from this map.

- New Storage Tank and Well Location
- Half Mile Buffer Zone
- Streams
- Roads
- Ponds
- Saltmarsh Common Yellowthroat
- Myrtle's Silverspot Butterfly
- CRLF Critical Habitat
- Steelhead Critical Habitat
- Tidewater Goby
- Coastal Marsh Milk-vetch
- Choris' Popcornflower
- Round-leaved Filaree

N

0.0 0.1 0.2 0.3

Miles

July 28, 2015
County of San Mateo
Department of Public Works

File Path: G:\Users\utility\watershed_protection\PERMITS\WPS2013-002 Pescadero Water Supply Project\Maps

Appendix B - Summary of Qualifications

Carole Foster, M.S., Biologist
County of San Mateo Department of Public Works
Utilities-Flood Control-Watershed Protection
555 County Center, 5th Floor
Redwood City, Ca. 94063-1665

Ms. Foster holds a Masters of Science degree in Conservation and Organismal Biology from San Jose State University (SJSU) (December 2014). Carole has over 10 years of water quality monitoring, sensitive plant surveys, fisheries, and wildlife related professional work experience as a biologist while working for the Santa Clara Valley Water District (SCVWD) and the County of San Mateo Department of Public Works (County). Other biologists whom have worked with Carole and are familiar with her plant and wildlife experience include Dr. Jerry Smith (SJSU), Jae Abel (SCVWD), Nina Merrill (SCVWD), and Julie Casagrande (County).

Fisheries projects that Carole has worked on include steelhead and coho research of various creeks in San Mateo, Santa Cruz, and Santa Clara Counties, as well as current steelhead and aquatic macroinvertebrate research in the Uvas Creek and Stevens Creek Watersheds. Wildlife experience includes surveys for special status species such as CRLF, SFGS, California tiger salamander and San Francisco dusky-footed woodrat, nesting bird surveys, rodent burrow surveys, and salt marsh harvest mouse trapping. Carole has conducted sensitive plant surveys since 2007 at both SCVWD and the County. Coursework in plant identification and biology include botany, ecology, plant taxonomy, and California plant communities.

As a field assistant for her graduate advisor at San Jose State University, Carole has sampled special status species such as steelhead, coho, California red-legged frog, and Western pond turtle using a variety of methods such as backpack electrofishing, seining, and PIT tagging.

Julie Casagrande, M.S., Biologist
San Mateo County, Department of Public Works
Utilities-Flood Control-Watershed Protection
555 County Center, 5th Floor
Redwood City, Ca. 94063-1665

Ms. Casagrande received a Bachelor of Science degree in Earth Systems Science and Policy with an emphasis in Watershed Science from California State University Monterey Bay (CSUMB) in May 2001, and received a Master of Science degree in Biological Sciences with an emphasis in Organismal Biology, Conservation, and Ecology from San Jose State University (SJSU) in August 2010. Julie has over 15 years of professional work and biological monitoring experience as a research technician at the Watershed

Institute of CSUMB, a field assistant for her SJSU graduate studies advisor, and a biologist for the County of San Mateo Department of Public Works (County).

Julie has worked on numerous projects involving water quality monitoring and laboratory analysis, invertebrate sampling and identification, lagoon monitoring, lagoon steelhead sampling, stream habitat typing, wetland delineation, stream habitat assessment, GIS mapping of salmonid habitat, and native plant restoration and monitoring. Fisheries projects that Julie has worked on include steelhead and coho sampling, rescues/relocation, and construction-related fish relocation in various creeks in San Mateo, Santa Cruz, Monterey, and Santa Clara Counties. Wildlife experience includes surveys for special status species such as CRLF, SFGS, California tiger salamander, San Francisco dusky-footed woodrat, and nesting bird surveys. Julie has also conducted sensitive plant surveys and construction monitoring since 2006 when she began working for the County. Relevant coursework includes aquatic ecology, fisheries management, conservation management, physical hydrology, geology, geomorphology, zoology, botany, California ecosystems, and California plant communities.

As a field assistant for her graduate advisor at SJSU, Julie sampled special status species including steelhead, coho, Tidewater goby, California red-legged frog, and Western pond turtle using a variety of methods such as backpack electrofishing, seining, and PIT tagging.

Her graduate research on the aquatic ecology of San Felipe Lake (San Benito County) involved water quality sampling, fish, macroinvertebrate and zooplankton sampling, and fish food habit analysis.

Michael Huynh, Biologist
San Mateo County, Department of Public Works
Utilities-Flood Control-Watershed Protection
555 County Center, 5th Floor
Redwood City, Ca. 94063-1665

Mr. Huynh obtained a Bachelor of Science degree in Conservation and Organismal Biology from San Jose State University (SJSU) (May 2012). He has over 3 years of water quality monitoring, sensitive plant surveys, fisheries and wildlife-related professional work experience as a biologist while working for the Santa Clara Valley Water District (SCVWD) and the United States Forest Service (USFS). Other biologists whom have worked with Michael and are familiar with his plant and wildlife experience include Dr. Jerry Smith (SJSU), Susan Yasuda (USFS), Becky Rogers (USFS), Delilah Brigham (USFS), Nina Merrill (SCVWD), and Joel Casagrande (NMFS).

Fisheries projects that Michael has worked on include steelhead and coho research on various creeks in San Mateo, Santa Cruz, and Santa Clara Counties. Moreover, Michael has worked as a fisheries technician for the USFS in Tongass National Forest where his duties included channel typing, identifying fish barriers, and salmonid sampling. As a wildlife technician for the USFS in Eldorado and Shasta Trinity National Forests, Michael performed USFWS protocol-level surveys for spotted owls, northern goshawks, bald eagles, and peregrine falcons. While working at the SCVWD, Michael assisted in multiple fish relocation projects and sampled reservoir fisheries using backpack and boat-mounted electrofishing gear.

Additionally, he has served as a biological monitor and performed surveys for special status species such as CRLF, SFGS, SFDW, California tiger salamander, western burrowing owl, and San Joaquin kit fox. In addition, Michael has experience in surveying for special status plant species such as Halls bush mallow, smooth lessingia, coyote ceanothus, and San Joaquin spearscale. Coursework in plant identification and biology include ecology, botany, California plant communities, and plant physiological ecology.

While working as a field assistant for graduate students and his undergraduate advisor at San Jose State University, Michael has sampled for steelhead, coho salmon, California red-legged frog, and pacific pond turtle using a variety of methods including backpack electrofishing, seining, radio telemetry, and PIT tagging.

Appendix C – Sensitive Species Information Sheets

Pescadero Water Supply and Sustainability Project

IPaC Trust Resource Report

Generated June 30, 2015 11:14 AM MDT

US Fish & Wildlife Service

IPaC Trust Resource Report

Project Description

NAME

Pescadero Water Supply and Sustainability Project

PROJECT CODE

CJG5V-3NLDR-CVBKX-WJDO2-PKJFYU

LOCATION

San Mateo County, California

DESCRIPTION

County of San Mateo property located approximately 1 mile west of the community of Pescadero; Less than 1 acre; Construction of a new water supply tank and well; To be constructed in summer 2016.

U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

Sacramento Fish And Wildlife Office
Federal Building
2800 COTTAGE WAY, ROOM W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Endangered Species

Proposed, candidate, threatened, and endangered species that are managed by the Endangered Species Program and should be considered as part of an effect analysis for this project.

This unofficial species list is for informational purposes only and does not fulfill the requirements under Section 7 of the Endangered Species Act, which states that Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action." This requirement applies to projects which are conducted, permitted or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can be obtained by returning to this project on the IPaC website and requesting an Official Species List from the regulatory documents section.

Amphibians

California Red-legged Frog Rana draytonii — **Threatened**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D02D

Birds

California Least Tern Sterna antillarum browni — **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B03X

Marbled Murrelet Brachyramphus marmoratus — **Threatened**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B08C

Short-tailed Albatross Phoebastria (=Diomedea) albatrus — **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B00Y

Western Snowy Plover Charadrius alexandrinus nivosus — **Threatened**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B07C

Fishes

Steelhead Oncorhynchus (=Salmo) mykiss **Threatened**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E08D

Tidewater Goby Eucyclogobius newberryi **Endangered**

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E071

Insects

San Bruno Elfin Butterfly Callophrys mossii bayensis **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=I00Q

Mammals

Southern Sea Otter Enhydra lutris nereis **Threatened**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0A7

Reptiles

San Francisco Garter Snake Thamnophis sirtalis tetrataenia **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C002

Critical Habitats

Potential effects to critical habitat(s) within the project area must be analyzed along with the endangered species themselves.

California Red-legged Frog Critical Habitat Final designated
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D02D#crithab

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

You are responsible for complying with the appropriate regulations for the protection of birds as part of this project. This involves analyzing potential impacts and implementing appropriate conservation measures for all project activities.

Allen's Hummingbird Selasphorus sasin — **Bird of conservation concern**
Season: Breeding

Ashy Storm-petrel Oceanodroma homochroa — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0AV

Bald Eagle Haliaeetus leucocephalus — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B008

Bell's Sparrow Amphispiza belli — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0HE

Black Oystercatcher Haematopus bachmani — **Bird of conservation concern**
Year-round

Burrowing Owl Athene cunicularia — **Bird of conservation concern**
Year-round

Common Yellowthroat Geothlypis trichas sinuosa — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B080

Costa's Hummingbird Calypte costae — **Bird of conservation concern**
Season: Breeding

Fox Sparrow Passerella iliaca — **Bird of conservation concern**
Season: Wintering

Lawrence's Goldfinch Carduelis lawrencei — **Bird of conservation concern**
Season: Breeding

Lesser Yellowlegs Tringa flavipes — **Bird of conservation concern**
Season: Wintering

Loggerhead Shrike Lanius ludovicianus — **Bird of conservation concern**
Season: Wintering
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FY

Long-billed Curlew Numenius americanus — **Bird of conservation concern**
Season: Wintering
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06S

Marbled Godwit Limosa fedoa — **Bird of conservation concern**
Season: Wintering

Nuttall's Woodpecker Picoides nuttallii — **Bird of conservation concern**
Year-round

Oak Titmouse Baeolophus inornatus — **Bird of conservation concern**
Year-round

Olive-sided Flycatcher Contopus cooperi — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FU

Short-billed Dowitcher Limnodromus griseus — **Bird of conservation concern**
Season: Wintering

Short-eared Owl Asio flammeus — **Bird of conservation concern**
Season: Wintering
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0HD

Tricolored Blackbird Agelaius tricolor — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06P

Whimbrel Numenius phaeopus — **Bird of conservation concern**
Season: Wintering

Yellow Warbler dendroica petechia ssp. brewsteri — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0EN

Red Knot Calidris canutus ssp. roselaari — **Bird of conservation concern**
Season: Wintering
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0G6

Refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. If your project overlaps or otherwise impacts a Refuge, please contact that Refuge to discuss the authorization process.

There are no refuges within this project area

Wetlands

Impacts to NWI wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

Project proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

There are no wetlands identified in this project area

Common Name	Scientific Name	Rare Plant Rank	CESA	FESA
Blasdale's bent grass	Agrostis blasdalei	1B.2	None	None
Bent-flowered fiddleneck	Amsinckia lunaris	1B.2	None	None
Slender silver moss	Anomobryum julaceum	4.2	None	None
Anderson's manzanita	Arctostaphylos andersonii	1B.2	None	None
Schreiber's manzanita	Arctostaphylos glutinosa	1B.2	None	None
Kings Mountain manzanita	Arctostaphylos regismontana	1B.2	None	None
Ocean bluff milk-vetch	Astragalus nuttallii var. nuttallii	4.2	None	None
Coastal marsh milk-vetch	Astragalus pycnostachyus var. pycnostachyus	1B.2	None	None
Round-leaved filaree	California macrophylla	1B.1	None	None
Johnny-nip	Castilleja ambigua var. ambigua	4.2	None	None
Franciscan thistle	Cirsium andrewsii	1B.2	None	None
San Francisco collinsia	Collinsia multicolor	1B.2	None	None
Branching beach aster	Corethrogyne leucophylla	3.2	None	None
Mountain lady's-slipper	Cypripedium montanum	4.2	None	None
Western leatherwood	Dirca occidentalis	1B.2	None	None
California bottle-brush grass	Elymus californicus	4.3	None	None
San Mateo woolly sunflower	Eriophyllum latilobum	1B.1	CE	FE
Sand-loving wallflower	Erysimum ammophilum	1B.2	None	None
Minute pocket moss	Fissidens pauperculus	1B.2	None	None
Stinkbells	Fritillaria agrestis	4.2	None	None
Fragrant fritillary	Fritillaria liliacea	1B.2	None	None
San Francisco gumplant	Grindelia hirsutula var. maritima	3.2	None	None
Butano Ridge cypress	Hesperocyparis abramsiana var. butanoensis	1B.2	CE	FE
Kellogg's horkelia	Horkelia cuneata var. sericea	1B.1	None	None
Point Reyes horkelia	Horkelia marinensis	1B.2	None	None
Harlequin lotus	Hosackia gracilis	4.2	None	None
Coast iris	Iris longipetala	4.2	None	None
Perennial goldfields	Lasthenia californica ssp. macrantha	1B.2	None	None
Coast yellow leptosiphon	Leptosiphon croceus	1B.1	None	None

Common Name	Scientific Name	Rare Plant Rank	CESA	FESA
Rose leptosiphon	Leptosiphon rosaceus	1B.1	None	None
Point Reyes meadowfoam	Limnanthes douglasii ssp. sulphurea	1B.2	CE	None
Arcuate bush-mallow	Malacothamnus arcuatus	1B.2	None	None
Marsh microseris	Microseris paludosa	1B.2	None	None
Elongate copper moss	Mielichhoferia elongata	2B.2	None	None
Woodland woolythreads	Monolopia gracilens	1B.2	None	None
Monterey pine	Pinus radiata	1B.1	None	None
Choris' popcorn-flower	Plagiobothrys chorisianus var. chorisianus	1B.2	None	None
San Francisco popcorn-flower	Plagiobothrys diffusus	1B.1	CE	None
Pine rose	Rosa pinetorum	1B.2	None	None
Hoffmann's sanicle	Sanicula hoffmannii	4.3	None	None
Marin checkerbloom	Sidalcea hickmanii ssp. viridis	1B.3	None	None
San Francisco campion	Silene verecunda ssp. verecunda	1B.2	None	None
Santa Cruz microseris	Stebbinsoseris decipiens	1B.2	None	None
Slender-leaved pondweed	Stuckenia filiformis ssp. alpina	2B.2	None	None
Santa Cruz clover	Trifolium buckwestiorum	1B.1	None	None

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (San Gregorio (3712234) or Half Moon Bay (3712244) or Woodside (3712243) or La Honda (3712233) or Franklin Point (3712223) or Pigeon Point (3712224))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Anderson's manzanita *Arctostaphylos andersonii*	PDERI04030	None	None	G2	S2	1B.2
arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0	None	None	G1Q	S1	1B.2
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
Bay checkerspot butterfly *Euphydryas editha bayensis*	IILEPK4055	Threatened	None	G5T1	S1	
black swift *Cypseloides niger*	ABNUA01010	None	None	G4	S2	SSC
Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060	None	None	G2	S2	1B.2
Butano Ridge cypress *Hesperocyparis abramsiana var. butanoensis*	PGCUP04082	Endangered	Endangered	G1T1	S1	1B.2
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061	None	None	G3T2Q	S2	1B.2
coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170	None	None	G1	S1	1B.1
coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2	None	None	G2T2	S2	1B.2
coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
Crystal Springs fountain thistle *Cirsium fontinale var. fontinale*	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0	None	None	G1	S1	1B.2
Edgewood blind harvestman *Calicina minor*	ILARA13020	None	None	G1	S1	
Edgewood Park micro-blind harvestman *Microcina edgewoodensis*	ILARA47010	None	None	G1	S1	
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S2S3	SSC
fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1	None	None	G5T1	S1	1B.2
Franciscan thistle *Cirsium andrewsii*	PDAST2E050	None	None	G3	S3	1B.2
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
Hall's bush-mallow *Malacothamnus hallii*	PDMAL0Q0F0	None	None	G2Q	S2	1B.2
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043	None	None	G4T2	S2?	1B.1
Kings Mountain manzanita *Arctostaphylos regismontana*	PDERI041C0	None	None	G2	S2	1B.2
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
marsh microseris *Microseris paludosa*	PDAST6E0D0	None	None	G2	S2	1B.2
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040	None	None	G2	S2	
minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0	None	None	G3?	S1	1B.2
monarch butterfly *Danaus plexippus*	IILEPP2010	None	None	G5	S3	
Monterey pine *Pinus radiata*	PGPIN040V0	None	None	G1	S1	1B.1
Monterey Pine Forest *Monterey Pine Forest*	CTT83130CA	None	None	G1	S1.1	
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered	None	G5T1	S1	
N. Central Coast Calif. Roach/Stickleback/Steelhead Stream *N. Central Coast Calif. Roach/Stickleback/Steelhead Stream*	CARA2633CA	None	None	GNR	SNR	
North Central Coast Short-Run Coho Stream *North Central Coast Short-Run Coho Stream*	CARA2632CA	None	None	GNR	SNR	
North Central Coast Steelhead/Sculpin Stream *North Central Coast Steelhead/Sculpin Stream*	CARA2637CA	None	None	GNR	SNR	
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Northern Interior Cypress Forest *Northern Interior Cypress Forest*	CTT83220CA	None	None	G2	S2.2	
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038	None	Endangered	G4T2	S2	1B.2
Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010	None	None	G2?	S2?	
rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180	None	None	G1	S1	1B.1
round-leaved filaree *California macrophylla*	PDGER01070	None	None	G2	S2	1B.1
Sacramento-San Joaquin Coastal Lagoon *Sacramento-San Joaquin Coastal Lagoon*	CALA1360CA	None	None	GNR	SNR	
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A	None	None	G5T2	S2	SSC
San Francisco campion *Silene verecunda ssp. verecunda*	PDCAR0U213	None	None	G5T2	S2	1B.2
San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0	None	None	G2	S2	1B.2
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082	None	None	G5T2T3	S2S3	SSC
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
San Francisco popcornflower *Plagiobothrys diffusus*	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
San Mateo thorn-mint *Acanthomintha duttonii*	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
San Mateo woolly sunflower *Eriophyllum latilobum*	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
sand-loving wallflower *Erysimum ammophilum*	PDBRA16010	None	None	G2	S2	1B.2
Santa Cruz kangaroo rat *Dipodomys venustus venustus*	AMAFD03042	None	None	G4T1	S1	
Santa Cruz microseris *Stebbinsoseris decipiens*	PDAST6E050	None	None	G2	S2	1B.2
Serpentine Bunchgrass *Serpentine Bunchgrass*	CTT42130CA	None	None	G2	S2.2	
slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091	None	None	G5T5	S3	2B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S2S3	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Valley Needlegrass Grassland *Valley Needlegrass Grassland*	CTT42110CA	None	None	G3	S3.1	
western leatherwood *Dirca occidentalis*	PDTHY03010	None	None	G2	S2	1B.2
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2	SSC
white-rayed pentachaeta *Pentachaeta bellidiflora*	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
woodland woollythreads *Monolopia gracilens*	PDAST6G010	None	None	G2G3	S2S3	1B.2

Record Count: 71

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Appendix E – Wetland Delineation

Pescadero Quarry
Preliminary Wetland Delineation
And Jurisdictional Determination
of
Waters of the U.S.

&

Investigation of Other Sensitive Aquatic Resources
Recognized by State and Local Coastal Programs

Prepared by BioMaAS, Inc.
San Francisco, California

Prepared for San Mateo County
Pescadero Water Supply and Sustainability Project

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INTRODUCTION

At the request of the County of San Mateo Department of Public Works (County), BioMaAS, Inc. conducted a formal wetland delineation of waters of the U.S. on the site of an abandoned portion of a rock quarry less than one mile west of the unincorporated community of Pescadero in San Mateo County, California. The site is just south of the junction of Pescadero Creek Road and Bean Hollow Road and is located on the USGS Pigeon Point 7.5 minute quadrangle (Figure 1, Appendix A).

The study area is situated on property owned by the County. Under the Pescadero Water Supply and Sustainability Project, the County is proposing to install a new water tank in the vicinity of an existing tank in order to increase storage capacity of domestic water for the town of Pescadero.

A preliminary delineation of jurisdictional waters of the U.S. potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) was conducted as a part of this study.

In addition to identifying potential waters of the U.S., an assessment was conducted concurrently to determine the presence or absence of on-site vegetation or hydrological features that potentially fall under the jurisdiction of State regulatory agencies, including the California Department of Fish and Wildlife (CDFW), the San Francisco Bay Regional Water Quality Control Board (RWQCB), and the California Coastal Commission (CCC). Under a joint agreement with the CCC, the County regulates activities overseen under the Coastal Act through their San Mateo County Local Coastal Program (LCP, San Mateo County 2013).

This report presents the results of our investigations.

METHODS and LIMITATIONS

Prior to conducting a field survey, reference materials were reviewed, including the USDA Web Soil Survey online browser (USDA 2014), the Pigeon Point USGS 7.5' quadrangle (USGS 2001), the National Wetlands Inventory online database (USFWS 2013), and aerial photographs of the study area. Methods used to identify potential jurisdictional wetlands and waters are based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Version 2.0* (USACE 2008).

Under the guidelines of the USACE, a "three parameter" approach is utilized to identify wetlands following regulations put forth in Section 404 of the Clean Water Act. Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology as determined by field investigation) must be present for a site to be classified as a wetland by the USACE (Environmental Laboratory 1987).

In addition to wetlands, the extent of "other waters" of the U.S., including drainages that have a hydrologic connection with "traditional navigable waters," is also generally defined as that portion of a drainage that falls within the limits of "ordinary high water." Field indicators of

ordinary high water include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. Traditional navigable waters generally include territorial ocean waters of the U.S. as well as associated bays, inlets, and estuaries, rivers, streams and waters of tributary drainages that ultimately flow to the ocean.

Wetlands falling under the jurisdiction of the RWQCB conform to the definitions and parameters used by the USACE, and are subject to the regulation of any activity which may affect the quality of the waters of the state.

The CDFW also generally takes jurisdiction over wetlands and other waters as defined by the USACE, and additionally takes jurisdiction over areas of riparian vegetation associated with the margins of streams and lakes that do not necessarily satisfy all three parameters required by the USACE to constitute a wetland.

In contrast to the federal definition of wetlands, the San Mateo County LCP, following CCC regulations, identifies wetlands based on the presence of a single parameter. The presence of either wetland vegetation, wetland hydrology, *or* wetland soil is sufficient to satisfy the definition of a wetland under CCC guidelines.

A reconnaissance of the study area was conducted for BioMaAS by biologist Christopher Thayer on November 12, 2014. The entire study area was surveyed on foot, and all distinct vegetation communities were visited and described. The survey was intended only to identify habitat types and to assess the potential for the presence of wetlands or plant communities within the study area that may fall under the jurisdiction of various federal, state, or local regulatory agencies. Focused special-status plant or animal surveys were not conducted as part of our reconnaissance. As a part of this study, dominant plant species of the study area were identified, and areas supporting significant hydrophytic vegetation or evidence of wetland hydrology were described and mapped. The wetland indicator status of all plants noted during the survey follows Lichvar, et al., (2014). The results are presented in Table 1. Nomenclature and common names for plants conform in part to Baldwin, et al. (2012), Thomas (1961), or Lichvar, et al. (2014), as appropriate.

Data points were sampled at appropriate, selected locations. A total of five data points identified as P-1 through P-5 were examined for evidence of the presence or absence of hydric soils, wetland hydrology, and hydrophytic vegetation. Subsurface soils were examined for characteristics that develop under frequent or prolonged saturation. All information, including plant species identified within the vicinity of the sample locations were recorded on field data forms (Appendix B). Soils information specific to the study area are presented in Appendix C.

SETTING and SITE DESCRIPTION

The limits of the study area consist of approximately 47,000 square feet or approximately 1.08 acre (Figure 2, Appendix A). Most of the area has been heavily disturbed by past quarrying activities

(Figure 3, Appendix A). A 39-foot diameter (140,000 gallon) water tank is present on site and serves as domestic water storage for the unincorporated community of Pescadero. The County is proposing to place an additional drinking water tank in the vicinity of the existing facility to improve water supply capacity. In addition to the existing water tank, the County maintains a chlorination building associated with the water tank and a small shed used for equipment storage. No other structures are present in the vicinity.

Geological makeup of the site consists primarily of sandstone formed as a marine terrace of Tertiary age (Martin Carpenter Associates, 1991). The majority of material quarried was used for road base.

Elevation of the site is approximately 200 to 225 feet. Topography ranges from nearly level in the vicinity of the existing water tank, to gently sloping upward toward a small, level plateau to the west that has been historically graded. A small, shallow drainage swale is present near the center of the study area, narrowly meandering in a north to south alignment. The drainage was dry at the time of the field survey.

VEGETATION

Vegetation within the study area may be primarily characterized as Northern coastal scrub, largely typical of the region although much of the vegetation appears to have been disturbed during quarry activities. Dominant species include native shrubs such as coyote brush (*Baccharis pilularis*), California coffeeberry (*Frangula californica*), bracken fern (*Pteridium aquilinum*), and the highly invasive, non-native Pampas grass (*Cortaderia jubata*), which is abundant throughout the region. Openings in the scrub and adjacent portions of the property are mostly grasslands that consist of sparse to patchy herbaceous species interspersed with scattered shrubs, herbs and grasses, both native and non-native. Where soil disturbance is greatest, as in the immediate vicinity of the existing water tank and the scraped area just to the west of the drainage swale, a sparse to dense cover of non-native plant species characteristic of ruderal vegetation is present. Ruderal vegetation on site is dominated by weedy species such as sweet fennel (*Foeniculum vulgare*), wild oats (*Avena fatua*), rip-gut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Rough cat's-ear (*Hypochaeris radicata*), crimson clover (*Trifolium incarnatum*), wild teasel (*Dipsacus fullonum*), Harding grass (*Phalaris aquatica*), and Italian thistle (*Carduus pycnocephalus*). Also present to a lesser extent are English plantain (*Plantago lanceolata*), cut-leaved plantain (*Plantago coronopus*), Italian ryegrass (*Festuca perennis*), and bristly ox-tongue (*Helminthotheca echioides*), among others.

In addition, a conspicuous stand of fairly dense spreading rush (*Juncus patens*), was noted on the flat between the existing water tank and the northern portion of the drainage swale (Appendix A, Figure 4).

The wetland indicator status of plant species detected in the study area was determined following Lichvar, et al. (2014). A list of all species detected within the study area and their wetland indicator status are presented in Table 1.

Table 1. Wetland Indicator Status of Plant Species Detected on the Project Site

INDICATOR CODE	WETLAND TYPE	COMMENT
OBL	Obligate Wetland	Occurs almost always (estimated probability 99%) under natural conditions in wetlands.
FACW	Facultative Wetland	Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
FACU	Facultative Upland	Usually occurs in non-wetlands (estimated probability 67%-99%), but occasionally found on wetlands (estimated probability 1%-33%).
UPL	Obligate Upland	Occurs in wetlands in another region, but occurs almost always (estimated probability 99%) under natural conditions in non-wetlands in the regions specified. If a species does not occur in wetlands in any region, it is not on the National List.
NI	No indicator	Insufficient information was available to determine an indicator status.

Table 1 (cont.)

SCIENTIFIC NAME	**COMMON NAME**	**WETLAND INDICATOR STATUS***
Achillea millefolium	yarrow	FACU
Briza maxima	rattlesnake grass	Not Listed
Bromus diandrus	rip-gut brome	Not Listed
Bromus hordeaceus	soft chess	FACU
Baccharis pilularis	coyote brush	Not Listed
Carduus pycnocephalus	Italian thistle	Not Listed
Carex harfordia	Harford's sedge	OBL
Ceanothus thyrsiflorus	blue blossom	Not Listed
Cortaderia jubata	pampas grass	FACU
Danthonia californica	California oatgrass	FACU
Elymus glaucus ssp. *glaucus*	blue wild rye	FACU
Festuca perennis (*Lolium*)	Italian ryegrass	FAC
Geranium molle	crane's bill	Not Listed
Helminthotheca echioides	bristly ox-tongue	Not Listed
Hypochaeris radicata	rough cat's-ear	FACU
Juncus effusus var. *pacificus*	Pacific rush	FACW
Juncus patens	spreading rush	FACW
Linum bienne	flax	Not Listed
Lotus corniculatus	bird's-foot trefoil	FAC
Madia sativa	coast tarweed	Not Listed
Morella californica	wax myrtle	FACW
Plantago coronopus	cut-leaf plantain	FACW
Plantago lanceolata	English plantain	FAC
Pteridium aquilinum	bracken fern	FACU
Rubus ursinus	California blackberry	FACW
Rumex acetosella	sheep sorrel	FACU

* Wetland indicator status based on Lichvar, et.al. 2014

HYDROLOGY

Hydrology of the study area is influenced by direct precipitation, surface runoff from adjacent lands, and moist air from the Pacific Ocean, a little more than one mile to the west. Along the coast, frequent fogs provide a significant moisture source due to fog drip and decreased evaporation rates. A small, ephemeral drainage swale is present along the center of the study area (Appendix A, Figure 4). The swale originates in the northern part of the site and consists of a low-gradient, very shallow, somewhat poorly defined channel with very low banks generally no more than a few inches high. The channel is approximately three feet wide on average. Minor scouring erosion within the channel is discontinuous and very shallow, indicating that the swale supports only ephemeral, seasonal flow events. Within the channel there is no evidence of surface seepage of groundwater. The northern, upper portion of the swale may have been previously excavated for the purpose of diverting runoff from the slope to the immediate west. An historic aerial photograph (Appendix A, Figure 3) indicates that the area around the head of the swale was heavily disturbed by quarry grading activities.

Within the study area, the swale trends in a southerly direction for approximately 229 feet (Appendix A, Figure 4). After leaving the study area the swale continues south for about 340 feet before emptying into a sediment retention pond, an impoundment constructed when the quarry was active. Overflow discharges from the impoundment flow through a culvert under Bean Hollow Road and through what appears to be a straight ditch until discharging into Butano Creek. From there, the creek meanders to the north and west, eventually emptying into the Pacific Ocean adjacent to Pescadero Marsh less than two miles to the northwest.

Outside of the drainage swale, no other direct evidence of wetland hydrology was detected in the study area although, locally, hydrology may be influenced by a fog-drip microclimate supporting wetland vegetation beneath the shrub/tree canopy at data point P-5 (Appendix B).

SOILS

During previous quarry operations, surface soils were removed from areas prior to mining and were to be stored for reclamation purposes (Martin Carpenter Associates, 1991). No record of past reclamation activities within the study area was reviewed during the compilation of the present report.

Based on information provided by the USDA Web Soil Survey online mapper (USDA 2014), three soil units are mapped within the study area, including Botella loam, sloping, seeped, Elkhorn sandy loam, moderately steep, eroded, and Colma sandy loam, steep, eroded. These soil types are described in more detail below.

Botella loam, sloping, seeped occurs on benches, alluvial fans, and terraces from 50 to 800 feet in elevation. Mean annual precipitation is 20 to 30 inches, mean annual air temperature is 57 to 59 degrees F, and the frost-free period is from 250 to 350 days. Within the mapping unit, Botella and similar soils make up about 85 percent with minor components of about 15 percent. The parent material is alluvium. Slopes are 7 to 15 percent, runoff is medium. These soils are

moderately well drained. The depth to water table is more than 80 inches, and the frequency of flooding or ponding is none. Hydric soils may be present in minor components within this soil type (USDA 2014). Wetland data points P-1 through P-4 were located within a portion of the site mapped as Botella loam, sloping, seeped (USDA 2014). No evidence of hydric soils were detected within the study area during the field survey.

Elkhorn sandy loam, moderately steep, eroded occurs on terraces from 50 to 2,380 feet in elevation. Mean annual precipitation is 14 to 22 inches, mean annual air temperature is 57 degrees F, and the frost-free period is 270 days. Within the mapping unit, Elkhorn and similar soils make up about 85 percent with minor components of about 15 percent. The parent material is alluvium. Slopes are 11 to 21 percent, runoff is medium. These soils are well drained. The depth to water table is more than 80 inches, and the frequency of flooding or ponding is none (USDA 2014). Wetland data point P-5 was located within a portion of the site mapped as Elkhorn sandy loam, moderately steep, eroded (USDA 2014).

Colma sandy loam, steep, eroded occurs on terraces from 50 to 600 feet in elevation. Mean annual precipitation is 27 inches, mean annual air temperature is 54 degrees F, and the frost-free period is from 300 to 350 days. Within the mapping unit, Colma and similar soils make up about 85 percent with minor components of about 15 percent. The parent material is marine sediments. Slopes are 21 to 41 percent, runoff is high. These soils are well drained. The depth to water table is more than 80 inches, and the frequency of flooding or ponding is none (USDA 2014).

The Botella loam, sloping, seeped, and Elkhorn sandy loam, moderately steep, eroded, soil units are considered hydric only within components or inclusions that represent just 5% and 2% of the mapping units respectively, where soils are frequently ponded for long or very long duration during the growing season (USDA 2014). Colma sandy loam, steep, eroded is not listed as a hydric soil.

Soils were sampled at a total of five data points within the study area during the field survey and were uniformly light brown colored sandy loam, generally with a color of 7.5 YR 4/4 (Munsell Color 2000), with angular broken sandstone pieces above a sandstone bedrock that was not penetrable with a hand shovel. The field investigation produced no evidence of the presence of hydric soils, based on a light-colored soil matrix and an absence of organic material layers in the upper horizon of sandy soils.

Wetland field data forms are provided in Appendix B.

Findings: Regulatory Implications of Wetlands and Other Waters

Wetlands, riparian areas, and other aquatic vegetation communities are considered sensitive biological resources and normally fall under the jurisdiction of several regulatory agencies, including protection under Section 404 of the federal Clean Water Act, and Section 1600, *et seq.* of the California Fish and Game Code.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) exerts jurisdiction over "waters of the U.S.", including, but not limited to, all waters which are subject to the ebb and flow of tide, wetlands, lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, natural ponds, and tributaries of the above features. Specifically, the USACE regulates dredging and placement of fill into waters of the U.S., including wetlands, under Section 404 of the federal Clean Water Act. Permitting is conducted with the oversight of the U.S. Environmental Protection Agency (EPA). The U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries Service) has input on permitting decisions by the USACE when an activity could affect wetland-dependent federally listed species.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes and similar areas, are defined by the USACE as "those areas that are inundated or saturated by surface or ground water 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" (33 CFR 328.3 [b]; 40 CFR 230.3 [t]). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology as determined by field investigation) must be present for a site to be classified as a wetland by the USACE (Environmental Laboratory 1987).

The extent of waters of the U.S. is generally defined as that portion which falls within the limits of "ordinary high water." Field indicators of ordinary high water include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. Typically, the width of waters corresponds to the two-year flood event.

Although the drainage swale within the Pescadero Quarry study area does not support significant wetland vegetation, it is expected to fall under the jurisdiction of the USACE and other regulatory agencies as an unvegetated Waters of the U.S. based on observable field characteristics including a defined channel, scouring, and minor sedimentary deposits. Within the study area the channel is approximately 229 feet long by three feet wide within the study area, totaling 687 square feet (Figure 4).

Regional Water Quality Control Board

The San Francisco Bay Regional Water Quality Control Board (RWQCB), under the auspices of the Porter-Cologne Water Act (SWRCB 2011), defines "waters of the state" as any surface water or groundwater, including saline waters within the boundaries of the state. In addition, it defines "water quality control" as the regulation of any activity which may affect the quality of the waters of the state and includes the prevention and correction of water pollution and nuisance water. RWQCB statutes under the Act include the regulation of storm water runoff associated

with construction projects and other activities that could discharge soil, pollutants, or other materials into waters of the state.

California Department of Fish and Wildlife

Riparian habitats are considered by State and federal regulatory agencies to represent a sensitive and declining resource. Wetlands and riparian areas often serve important biological functions by providing nesting, breeding, foraging, and spawning habitat for a wide variety of resident and migratory wildlife species. Impacts to stream channels with a defined bed and bank are addressed specifically by the California Fish and Game Code. In addition to the stream channel itself, riparian vegetation adjacent to waterways is generally considered as waters of the State, extending to the outer drip-line of the canopy.

Within the study area, riparian vegetation along the drainage swale is very limited, including a single wax myrtle (*Morella californica*), and a small patch of arroyo willow (*Salix lasiolepis*) (Figure 3). These features are considered to be sensitive riparian vegetation that are expected to fall under the regulatory jurisdiction of the California Department of Fish and Wildlife.

San Mateo County Local Coastal Program (LCP)

The sensitive habitats component of the San Mateo County Local Coastal Program (LCP) defines a 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 (San Mateo County 2013). Such wetlands can include mudflats (barren of vegetation), marshes, and swamps, and 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), marginal to lakes, ponds, and man-made 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 vernally wet areas where the soils are not hydric.

According to the LCP, 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% cover of some combination of these plants, unless it is a mudflat."

Additionally, the LCP definition of sensitive habitats includes all perennial and intermittent streams and their tributaries, as well as, but not limited to, riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs, and habitats supporting rare, endangered, and unique species (San Mateo County 2013).

Although none of the plant species described as typical wetland species in the LCP are present within the study area, the on-site drainage swale is expected to fall under the LCP definition as a

wetland based on the presence of wetland hydrology within the stream channel. Also included as LCP wetlands are two wetland plant species including an individual of wax myrtle (*Morella californica*), and a small patch of arroyo willow (*Salix lasiolepis*), both associated with the drainage swale as mapped on Figure 3. Furthermore, a stand of vegetation dominated by arroyo willow and wax myrtle is present in the southwestern part of the study area, comprising approximately 4,000 square feet. Although it is not associated with the onsite drainage, it also constitutes a wetland under the LCP by the dominance of two plant species considered to be wetland vegetation. Based on federal guidelines (Lichvar, et al. 2014), the wetland status for both wax myrtle and arroyo willow is FACW, indicating that each species usually occurs in wetlands at an estimated probability of 67%-99%, but are occasionally found in non-wetlands.

Additionally, during the initial survey a stand of spreading rush (*Juncus patens*), approximately 1,500 square feet in area was noted in the vicinity of the existing water tank (Figure 4). The spreading rush stand, as mapped, was roughly estimated to support approximately 50 percent cover of spreading rush during the field survey (see data point P-4). Although this native species is often seen in dry soil conditions, it is also encountered in moist soil conditions. The indicator status of spreading rush is FACW, meaning it usually occurs in wetlands (estimated probability 67%-99%), but is sometimes found in non-wetlands (Lichvar, et al., 2014).

The County, under the San Mateo County LCP, and following the CCC guidelines, has the discretion to identify any feature as a wetland if it satisfies just one of the three wetland parameters including wetland hydrology, wetland soils, or a preponderance of wetland vegetation. As such, we expect that these features will also fall under the jurisdiction of the California Coastal Commission under the auspices of the San Mateo County LCP because they are clearly dominated by wetland plant species.

Recommendations

We recommend that a copy of this report be addressed to the U.S. Army Corps of Engineers and the California Department of Fish and Wildlife with a request for review and concurrence with the findings presented herein. If a site visit is deemed necessary by regulatory staff subsequent to their review of this document, we would be happy to meet with personnel in the field.

Regardless of the status of USACE or CDFW jurisdiction, it is nevertheless expected that the Regional Water Quality Control Board (RWQCB), Region 2, San Francisco Bay, would consider the drainage within the project area to be waters of the State of California.

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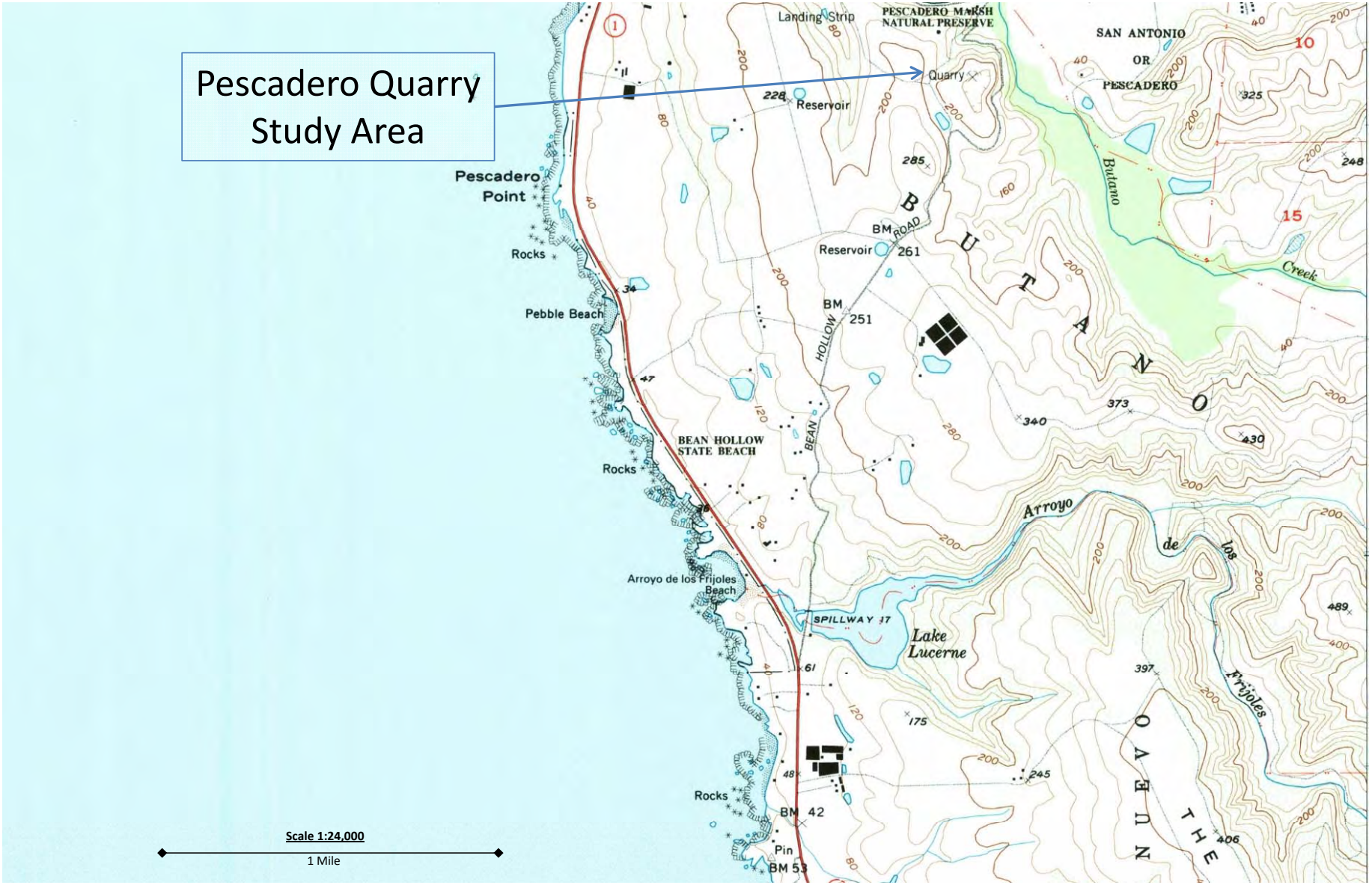
APPENDIX A

Figures 1-4



No.	Date	Revision	Approved

BioMaAS

Date: 12-18-14
Surveyed: CT
Drafted: TJ
Checked: CT

Pescadeo Quarry Study Area

Pigeon Point Quadrangle
California-San Mateo Co.
7.5 Minute Series (Topographic)

Figure 1

Project

No.	Date	Revision	Approved

BioMaAS

Date: 12-18-14
Surveyed: CT
Drafted: TJ
Checked: CT

Pescadeo Quarry Wetland Delineation Area (Study Area)
Location Map

Figure 2

Project

Legend

Limits of Study Area (Approx. 47,037 sq.ft. or 1.08 ac. – Location Approximate. Not to Scale)

N

No.	Date	Revision	Approved

BioMaAS

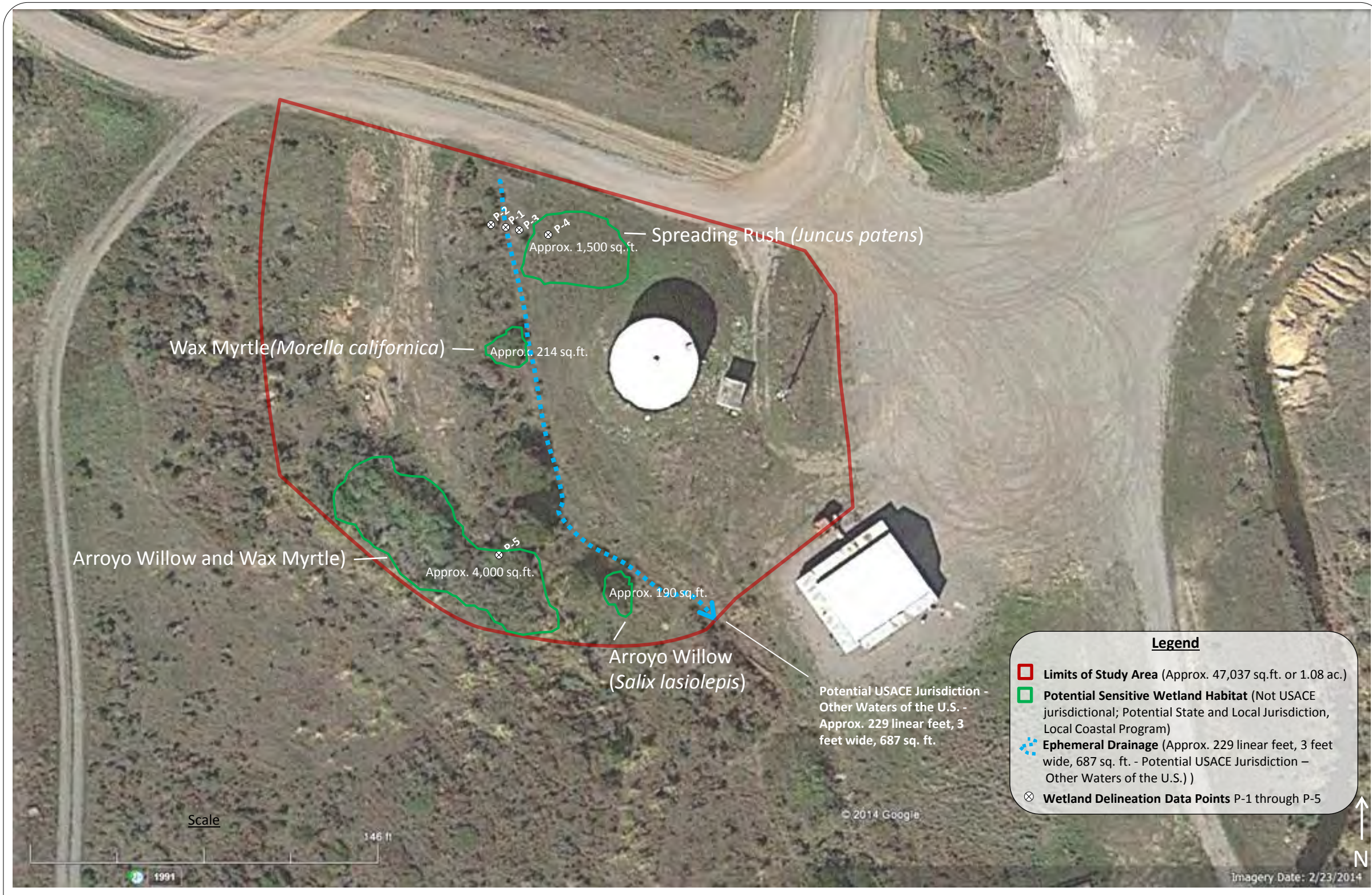
Date: 12-18-14
Surveyed: CT
Drafted: TJ
Checked: CT

Pescadero Quarry 1963, showing Bean Hollow Road and Sediment Retention Basin

UC Santa Cruz (http://guides.library.ucsc.edu/maps/aerial)

Figure 3

Project



No.	Date	Revision	Approved

BioMaAS

Date: 12-23-14
Surveyed: CT
Drafted: TJ
Checked: CT

Pescadero Quarry Wetland Delineation
Potentially Sensitive Habitat Components
California Coastal Commission and San Mateo Local Coastal Program

Figure 4

Project

APPENDIX B

Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pescadero Quarry City/County: San Mateo Sampling Date: 11/12/14

Applicant/Owner: County of San Mateo State: CA Sampling Point: P-1

Investigator(s): C. Thayer - BioMaAS Section, Township, Range: R5W/T8S (unsectioned)

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): < 5

Subregion (LRR): LRRC Lat: 37.246359 Long: -122.399782 Datum: WGS 84

Soil Map Unit Name: Botella Loam, sloping, seeped NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ✓	
Hydric Soil Present?	Yes ○	No ✓	**Is the Sampled Area within a Wetland?** Yes ○ No ○
Wetland Hydrology Present?	Yes ✓	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ø			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Baccharis pilularis	10	Y	NL
2.			
3.			
4.			
5.			
Total Cover:	10%		
Herb Stratum			
1. Elymus glaucus	40	Y	FACU
2. Danthonia californica	10	Y	FACU
3. Rubus ursinus	5	Y	FACW
4. Achillea millefolium	5	Y	FACU
5. Rumex crispus	5	Y	FAC
6. Symphiotrichum chilensis	2	-	FAC
7.			
8.			
Total Cover:	67%		
Woody Vine Stratum			
1. Ø			
2.			
Total Cover:	67%		

% Bare Ground in Herb Stratum 33 % % Cover of Biotic Crust < 1 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ✓

Remarks:

SOIL

Sampling Point: P-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5 YR 4/4		Ø				sandy loam	bedrock at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ✓

Remarks: Hard sandstone impenetrable at 8". No organic layers in sandy soil, light-colored matrix

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ✓ Depth (inches):

Water Table Present? Yes ○ No ✓ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ✓ Depth (inches):

Wetland Hydrology Present? Yes ✓ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: P-1 located in center of shallow swale channel (ephemeral, dry)

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PEscadero Quarry City/County: San Mateo Sampling Date: 11/12/14
Applicant/Owner: County of San Mateo State: CA Sampling Point: P-2
Investigator(s): C Thayer - BioMaAS Section, Township, Range: R5W/T8S (unsectioned)
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 10 %
Subregion (LRR): LRRC Lat: 37.246359 Long: -122.399794 Datum: WGS 84
Soil Map Unit Name: Botella loam, sloping, seeped NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ○ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ○
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ✓	
Hydric Soil Present?	Yes ○	No ✓	**Is the Sampled Area within a Wetland?** Yes ○ No ○
Wetland Hydrology Present?	Yes ○	No ✓	

Remarks: 6' west of P-1 data point outside of ephemeral channel
30% slope

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. 0			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Baccharis pilularis	15	Y	NL
2.			
3.			
4.			
5.			
Total Cover:	15 %		
Herb Stratum			
1. Danthonia californica	25	Y	FACU
2. Elymus glaucus	25	Y	FACU
3. Rubus ursinus	5	Y	FACW
4. Plantago lanceolata	5	Y	FAC
5.			
6.			
7.			
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1. 0			
2.			
Total Cover:	60 %		

% Bare Ground in Herb Stratum 40 % % Cover of Biotic Crust < 1 %

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ✓

Remarks:

SOIL

Sampling Point: P-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	7.5YR 4/4		0				sandy loam	see below

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ✓

Remarks:

Sandstone bedrock impenetrable at 8" No organic layers in sandy soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ✓ Depth (inches):

Water Table Present? Yes ○ No ○ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches):

Wetland Hydrology Present? Yes ○ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

P-2 located outside of shallow swale channel

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pescadero Quarry City/County: San Mateo Sampling Date: 11/12/14
Applicant/Owner: County of San Mateo State: CA Sampling Point: P-3
Investigator(s): C Thayer - BioMaAS Section, Township, Range: R5W / T8S (unsectioned)
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): - Slope (%): 0
Subregion (LRR): LRRC Lat: 37.246356 Long: -122.399770 Datum: WGS 84
Soil Map Unit Name: Botella loam, sloping, seeped NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	
Hydric Soil Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: 6' east of P-1, data point outside of ephemeral channel

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2. Ø			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Bromus hordeaceus	15	Y	FACU
2. Juncus patens	10	Y	FACW
3. Lotus corniculatus	10	Y	FAC
4. Bromus diandrus	10	Y	NL
5. Trifolium incarnatum	5	Y	NL
6. Hirschfeldia incana	5	Y	NL
7. Madia sativa	5	Y	NL
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1. Ø			
2.			
Total Cover:	60 %		

% Bare Ground in Herb Stratum 40 % % Cover of Biotic Crust <1 %

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 29% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: Location is outside of conspicuous stand of Juncus patens

SOIL

Sampling Point: P-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5 YR 4/4		—				Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ✓

Remarks: Hard sandstone impenetrable at 8". No organic layers in sandy soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient) Ø

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ✓ Depth (inches):

Water Table Present? Yes ○ No ✓ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ✓ Depth (inches):

Wetland Hydrology Present? Yes ○ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of ponding or sediment deposits on flat

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pescadero Quarry City/County: San Mateo Sampling Date: 11/12/14

Applicant/Owner: County of San Mateo State: CA Sampling Point: P-4

Investigator(s): C Thayer - BioMaAS Section, Township, Range: R5W/T8S (unsectioned)

Landform (hillslope, terrace, etc.): level flat Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): LRRC Lat: 37.246346 Long: -122.399719 Datum: WGS 84

Soil Map Unit Name: Botella Loam, sloping, seeped NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ✓	
Hydric Soil Present?	Yes ○	No ✓	**Is the Sampled Area within a Wetland?** Yes ○ No ✓
Wetland Hydrology Present?	Yes ○	No ✓	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ø			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Ø			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Juncus patens	50	Y	FACW
2. Bromus hordeaceus	30	Y	FACU
3. Vulpia myuros (Festuca)	10		FACU
4.			
5.			
6. Briza maxima	5		NL
7. Trifolium incarnatum	<5		NL
8.			
Total Cover:	%		
Woody Vine Stratum			
1. Ø			
2.			
Total Cover:	99 %		

% Bare Ground in Herb Stratum <5 % % Cover of Biotic Crust % %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ✓

Remarks:

SOIL

Sampling Point: P-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5 YR 4/4		-				Sandy loam	see below

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ✓

Remarks:

Light colored sandy loam with no organic layer in upper profile in sandy soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ✓ Depth (inches):

Water Table Present? Yes ○ No ✓ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ✓ Depth (inches):

Wetland Hydrology Present? Yes ○ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pescadero Quarry City/County: San Mateo Sampling Date: 11/12/14

Applicant/Owner: County of San Mateo State: CA Sampling Point: P-5

Investigator(s): C. Thayer - BioMaAS Section, Township, Range: R5W/T8S (unsectioned)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Level Slope (%): <5%

Subregion (LRR): LRRC Lat: 37.245964 Long: -122.399796 Datum: WGS 84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ○	
Hydric Soil Present?	Yes ○	No ✓	**Is the Sampled Area within a Wetland?** Yes ○ No ○
Wetland Hydrology Present?	Yes ○	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	40%	Y	FACW
2. Morella californica	5	Y	FACW
3.			
4.			
Total Cover:	45 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Carex harfordii	10	Y	OBL
2. Rubus ursinus	5	Y	FACW
3. Juncus effusus v. pacificus	5	Y	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	60 %		

% Bare Ground in Herb Stratum 80 % % Cover of Biotic Crust 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ○

Remarks:

SOIL

Sampling Point: P-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 3/4		—				sandy loam	see below

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ○

Remarks: Light-colored soil matrix; no organic layers in upper profile in sandy soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☑ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ☑ Depth (inches):

Water Table Present? Yes ○ No ☑ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ☑ Depth (inches):

Wetland Hydrology Present? Yes ○ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Minor area (5%) biotic crust. Hydrology may be influenced by fog drip microclimate beneath shrub/tree canopy.

Appendix C

Site Soil Report

and

Hydric Soils List

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Mateo Area, California

Pescadero Quarry

November 7, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

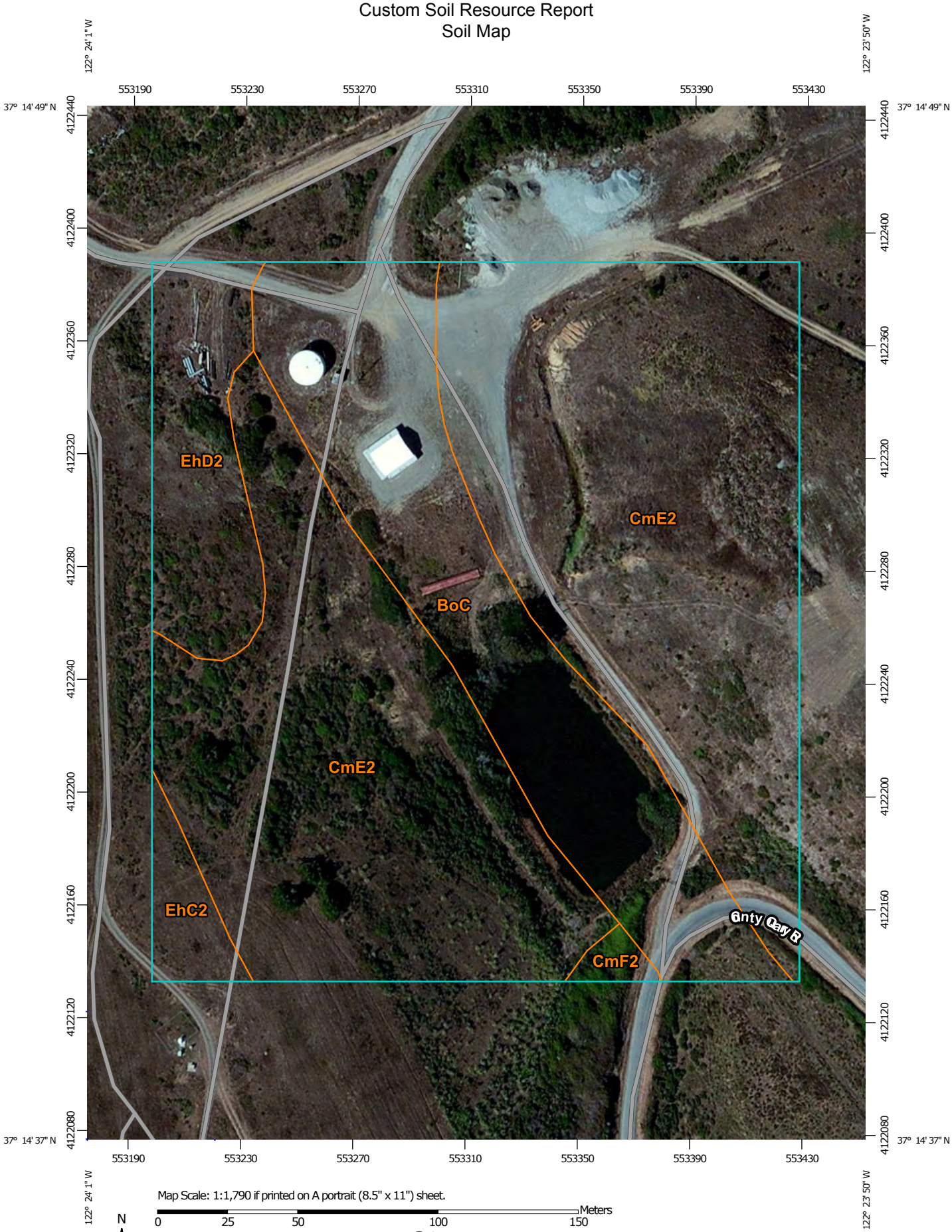
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 8, Sep 17, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 26, 2010—Sep 17, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

San Mateo Area, California (CA637)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BoC	Botella loam, sloping, seeped	3.2	22.2%
CmE2	Colma sandy loam, steep, eroded	9.7	66.8%
CmF2	Colma sandy loam, very steep, eroded	0.1	0.7%
EhC2	Elkhorn sandy loam, sloping, eroded	0.3	2.3%
EhD2	Elkhorn sandy loam, moderately steep, eroded	1.2	8.1%
Totals for Area of Interest		**14.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Mateo Area, California

BoC—Botella loam, sloping, seeped

Map Unit Setting

National map unit symbol: h9vb
Elevation: 50 to 800 feet
Mean annual precipitation: 20 to 30 inches
Mean annual air temperature: 57 to 59 degrees F
Frost-free period: 250 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Botella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Botella

Setting

Landform: Benches, alluvial fans, terraces
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 28 inches: loam
H2 - 28 to 60 inches: silty clay loam

Properties and qualities

Slope: 7 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear

Across-slope shape: Linear

Soquel
Percent of map unit: 5 percent

Dublin
Percent of map unit: 5 percent

CmE2—Colma sandy loam, steep, eroded

Map Unit Setting
National map unit symbol: h9w0
Elevation: 50 to 600 feet
Mean annual precipitation: 27 inches
Mean annual air temperature: 54 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Colma and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colma

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine sediments

Typical profile
H1 - 0 to 10 inches: sandy loam
H2 - 10 to 30 inches: loam
H3 - 30 to 60 inches: fine sandy loam

Properties and qualities
Slope: 21 to 41 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C

Minor Components

Corralitos
Percent of map unit: 5 percent

Botella
Percent of map unit: 5 percent

Gullied land
Percent of map unit: 5 percent

CmF2—Colma sandy loam, very steep, eroded

Map Unit Setting
National map unit symbol: h9w1
Elevation: 50 to 600 feet
Mean annual precipitation: 27 inches
Mean annual air temperature: 54 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Colma and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colma

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine sediments

Typical profile
H1 - 0 to 10 inches: sandy loam
H2 - 10 to 20 inches: loam
H3 - 20 to 60 inches: fine sandy loam

Properties and qualities
Slope: 41 to 75 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C

Minor Components

Gullied land

Percent of map unit: 5 percent

Corralitos

Percent of map unit: 5 percent

Botella

Percent of map unit: 5 percent

EhC2—Elkhorn sandy loam, sloping, eroded

Map Unit Setting

National map unit symbol: h9wv
Elevation: 50 to 2,380 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Elkhorn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkhorn

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 25 inches: sandy loam
H2 - 25 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 11 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups
Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Minor Components

Denison
Percent of map unit: 5 percent

Tierra
Percent of map unit: 5 percent

Baywood
Percent of map unit: 5 percent

EhD2—Elkhorn sandy loam, moderately steep, eroded

Map Unit Setting
National map unit symbol: h9ww
Elevation: 50 to 2,380 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Elkhorn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkhorn

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile
H1 - 0 to 25 inches: sandy loam

H2 - 25 to 60 inches: sandy clay loam

Properties and qualities

Slope: 11 to 21 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Minor Components

Denison

Percent of map unit: 5 percent

Baywood

Percent of map unit: 5 percent

Tierra

Percent of map unit: 3 percent

Unnamed

Percent of map unit: 2 percent
Landform: Fan remnants

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Hydric Soils

San Mateo Area, California

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
BdA:					
Botella loam, nearly level, imperfectly drained	Unnamed	5	---	Yes	2B3
BdB:					
Botella loam, gently sloping, imperfectly drained	Unnamed	5	---	Yes	2B3
BfB:					
Botella loam, nearly level and gently sloping, poorly d rained variant	Botella variant	85	Alluvial fan, Bench, Terrace	Yes	2B3
BoC:					
Botella loam, sloping, seeped	Unnamed	5	---	Yes	2B3
Cf:					
Coastal beaches	Coastal beaches	85	Beach	Yes	4
CmD2:					
Colma sandy loam, moderately steep, eroded	Unnamed	1	---	Yes	2B3
CoA:					
Coquille loam, nearly level, saline	Coquille	85	Tidal flat	Yes	2B3, 4
CrA:					
Corralitos loamy sand, nearly level, imperfectly draine d	Unnamed	2	---	Yes	4
	Unnamed	1	---	Yes	2B1
CtA:					
Corralitos sandy loam, nearly level, imperfectly draine d	Unnamed	1	---	Yes	2B1
	Unnamed	1	---	Yes	4
CtB:					
Corralitos sandy loam, gently sloping, imperfectly drai ned	Unnamed	1	---	Yes	2B1
CuA:					
Corralitos sandy loam, over gravel, nearly level, imper fectly drained	Unnamed	1	---	Yes	2B1
CyA:					
Corralitos sandy loam, over clay, nearly level, imperfe ctly drained	Unnamed	1	---	Yes	2B1
DdA:					
Denison clay loam, nearly level, imperfectly drained	Unnamed	1	---	Yes	2B3

Hydric Soils

San Mateo Area, California

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
DuA:					
Dublin clay, nearly level	Unnamed	1	---	Yes	2B3
DuB:					
Dublin clay, gently sloping	Unnamed	1	---	Yes	2B3
DuC2:					
Dublin clay, sloping, eroded	Unnamed	1	---	Yes	2B3
DwA:					
Dublin clay, nearly level, imperfectly drained	Unnamed	2	---	Yes	2B3
DwB:					
Dublin clay, gently sloping, imperfectly drained	Unnamed	2	---	Yes	2B3
EhD2:					
Elkhorn sandy loam, moderately steep, eroded	Unnamed	2	---	Yes	2B3
EtB:					
Elkhorn sandy loam, thick surface, gently sloping	Unnamed	1	---	Yes	2B3
FaA:					
Farallone loam, nearly level	Unnamed	1	---	Yes	2B2
FcC2:					
Farallone coarse sandy loam, sloping, eroded	Unnamed	1	---	Yes	2B2
FsB:					
Farallone coarse sandy loam, over coarse sands, gently sloping, seeped	Miramar	4	---	Yes	2B2
GdC2:					
Gazos loam, dark, sloping, eroded	Unnamed	2	---	Yes	2B3
Gu:					
Gullied land (alluvial soil material)	Unnamed	5	---	Yes	4
Gv:					
Gullied land (gazos-lobitos soil material)	Unnamed	5	---	Yes	4
LoA:					
Lockwood loam, nearly level, imperfectly drained	Unnamed	5	---	Yes	2B3
LvB2:					
Lockwood loam, brown subsoil variant, gently sloping, e roded	Unnamed	5	---	Yes	2B3, 3

Hydric Soils

San Mateo Area, California

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
LwB: Lockwood loam, gently sloping, seeped	Unnamed	5	---	Yes	2B3, 3
LwC: Lockwood loam, sloping, seeped	Unnamed	5	---	Yes	2B3, 3
Ma: Mixed alluvial land	Unnamed	5	---	Yes	4
PpD2: Pomponio loam, moderately steep, eroded	Unnamed	2	---	Yes	2B3, 3
SmA: Soquel loam, nearly level, imperfectly drained	Unnamed	1	---	Yes	2B3
SpB: Soquel loam, gently sloping, poorly drained	Unnamed	1	---	Yes	2B3
SrA: Soquel loam, over clay, nearly level, poorly drained	Unnamed	1	---	Yes	2B3
SsA: Soquel loam, over clay, nearly level, imperfectly drain ed	Unnamed	1	---	Yes	2B3
SwD2: Sweeney clay loam, moderately steep, eroded	Unnamed	1	---	Yes	2B3
SzD2: Sweeney stony clay loam, moderately steep, eroded	Unnamed	1	---	Yes	2B3
SzE2: Sweeney stony clay loam, steep, eroded	Unnamed	1	---	Yes	2B3
TeB: Tierra loam, gently sloping	Unnamed	1	---	Yes	2B3
TeC2: Tierra loam, sloping, eroded	Unnamed	2	---	Yes	2B3
TeD2: Tierra loam, moderately steep, eroded	Unnamed	2	---	Yes	2B3
TeD3: Tierra loam, moderately steep, severely eroded	Unnamed	1	---	Yes	2B3

Hydric Soils

San Mateo Area, California

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
TsC2:					
Tierra sandy loam, acid variant, sloping, eroded	Unnamed	2	Hill	Yes	2B3
TuC2:					
Tunitas clay loam, sloping, eroded	Unnamed	5	---	Yes	2B3
TuD2:					
Tunitas clay loam, moderately steep, eroded	Unnamed	5	---	Yes	2B3
TwA:					
Tunitas clay loam, nearly level, imperfectly drained	Tunitas	75	Alluvial fan, Flood plain	Yes	2B2
	Unnamed	10	---	Yes	2B3
TwB:					
Tunitas clay loam, gently sloping, imperfectly drained	Unnamed	5	---	Yes	2B3
TxA:					
Tunitas loam, nearly level	Unnamed	2	---	Yes	2B3
WaA:					
Watsonville clay loam, nearly level	Unnamed	5	---	Yes	3
WaB:					
Watsonville clay loam, gently sloping	Unnamed	5	---	Yes	3
WmA:					
Watsonville loam, nearly level	Unnamed	5	---	Yes	3
WmB:					
Watsonville loam, gently sloping	Unnamed	3	---	Yes	3
WnA:					
Watsonville loam, nearly level, poorly drained	Unnamed	5	---	Yes	3
WnB:					
Watsonville loam, gently sloping, poorly drained	Unnamed	5	---	Yes	3
WoB:					
Watsonville loamy sand, gently sloping, overblown	Unnamed	1	---	Yes	2B3
WsB:					
Watsonville sandy loam, gently sloping	Unnamed	1	---	Yes	3

Hydric Soils

San Mateo Area, California

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
WsC2:					
Watsonville sandy loam, sloping, eroded	Unnamed	1	---	Yes	2B3

Explanation of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   B. are poorly drained or very poorly drained and have either:
      1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
      2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
      3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

Appendix D

Site Photographs

Photo 1.

View northwest showing head of ephemeral drainage swale.

Photo 2.

View east showing portion of spreading rush stand (*Juncus patens*)

Photo 3.

View west along data transect from data points P-4 to P-1

Appendix F. Pescadero Quarry Preliminary Wetland Delineation and Jurisdictional Determination of Waters of the U.S.

Pescadero Quarry
Preliminary Wetland Delineation
And Jurisdictional Determination
of
Waters of the U.S.

&

Investigation of Other Sensitive Aquatic Resources
Recognized by State and Local Coastal Programs

Prepared by BioMaAS, Inc.
San Francisco, California

Prepared for San Mateo County
Pescadero Water Supply and Sustainability Project

TABLE OF CONTENTS

INTRODUCTION

At the request of the County of San Mateo Department of Public Works (County), BioMaAS, Inc. conducted a formal wetland delineation of waters of the U.S. on the site of an abandoned portion of a rock quarry less than one mile west of the unincorporated community of Pescadero in San Mateo County, California. The site is just south of the junction of Pescadero Creek Road and Bean Hollow Road and is located on the USGS Pigeon Point 7.5 minute quadrangle (Figure 1, Appendix A).

The study area is situated on property owned by the County. Under the Pescadero Water Supply and Sustainability Project, the County is proposing to install a new water tank in the vicinity of an existing tank in order to increase storage capacity of domestic water for the town of Pescadero.

A preliminary delineation of jurisdictional waters of the U.S. potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) was conducted as a part of this study.

In addition to identifying potential waters of the U.S., an assessment was conducted concurrently to determine the presence or absence of on-site vegetation or hydrological features that potentially fall under the jurisdiction of State regulatory agencies, including the California Department of Fish and Wildlife (CDFW), the San Francisco Bay Regional Water Quality Control Board (RWQCB), and the California Coastal Commission (CCC). Under a joint agreement with the CCC, the County regulates activities overseen under the Coastal Act through their San Mateo County Local Coastal Program (LCP, San Mateo County 2013).

This report presents the results of our investigations.

METHODS and LIMITATIONS

Prior to conducting a field survey, reference materials were reviewed, including the USDA Web Soil Survey online browser (USDA 2014), the Pigeon Point USGS 7.5' quadrangle (USGS 2001), the National Wetlands Inventory online database (USFWS 2013), and aerial photographs of the study area. Methods used to identify potential jurisdictional wetlands and waters are based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Version 2.0* (USACE 2008).

Under the guidelines of the USACE, a "three parameter" approach is utilized to identify wetlands following regulations put forth in Section 404 of the Clean Water Act. Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology as determined by field investigation) must be present for a site to be classified as a wetland by the USACE (Environmental Laboratory 1987).

In addition to wetlands, the extent of "other waters" of the U.S., including drainages that have a hydrologic connection with "traditional navigable waters," is also generally defined as that portion of a drainage that falls within the limits of "ordinary high water." Field indicators of

ordinary high water include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. Traditional navigable waters generally include territorial ocean waters of the U.S. as well as associated bays, inlets, and estuaries, rivers, streams and waters of tributary drainages that ultimately flow to the ocean.

Wetlands falling under the jurisdiction of the RWQCB conform to the definitions and parameters used by the USACE, and are subject to the regulation of any activity which may affect the quality of the waters of the state.

The CDFW also generally takes jurisdiction over wetlands and other waters as defined by the USACE, and additionally takes jurisdiction over areas of riparian vegetation associated with the margins of streams and lakes that do not necessarily satisfy all three parameters required by the USACE to constitute a wetland.

In contrast to the federal definition of wetlands, the San Mateo County LCP, following CCC regulations, identifies wetlands based on the presence of a single parameter. The presence of either wetland vegetation, wetland hydrology, *or* wetland soil is sufficient to satisfy the definition of a wetland under CCC guidelines.

A reconnaissance of the study area was conducted for BioMaAS by biologist Christopher Thayer on November 12, 2014. The entire study area was surveyed on foot, and all distinct vegetation communities were visited and described. The survey was intended only to identify habitat types and to assess the potential for the presence of wetlands or plant communities within the study area that may fall under the jurisdiction of various federal, state, or local regulatory agencies. Focused special-status plant or animal surveys were not conducted as part of our reconnaissance. As a part of this study, dominant plant species of the study area were identified, and areas supporting significant hydrophytic vegetation or evidence of wetland hydrology were described and mapped. The wetland indicator status of all plants noted during the survey follows Lichvar, et al., (2014). The results are presented in Table 1. Nomenclature and common names for plants conform in part to Baldwin, et al. (2012), Thomas (1961), or Lichvar, et al. (2014), as appropriate.

Data points were sampled at appropriate, selected locations. A total of five data points identified as P-1 through P-5 were examined for evidence of the presence or absence of hydric soils, wetland hydrology, and hydrophytic vegetation. Subsurface soils were examined for characteristics that develop under frequent or prolonged saturation. All information, including plant species identified within the vicinity of the sample locations were recorded on field data forms (Appendix B). Soils information specific to the study area are presented in Appendix C.

SETTING and SITE DESCRIPTION

The limits of the study area consist of approximately 47,000 square feet or approximately 1.08 acre (Figure 2, Appendix A). Most of the area has been heavily disturbed by past quarrying activities

(Figure 3, Appendix A). A 39-foot diameter (140,000 gallon) water tank is present on site and serves as domestic water storage for the unincorporated community of Pescadero. The County is proposing to place an additional drinking water tank in the vicinity of the existing facility to improve water supply capacity. In addition to the existing water tank, the County maintains a chlorination building associated with the water tank and a small shed used for equipment storage. No other structures are present in the vicinity.

Geological makeup of the site consists primarily of sandstone formed as a marine terrace of Tertiary age (Martin Carpenter Associates, 1991). The majority of material quarried was used for road base.

Elevation of the site is approximately 200 to 225 feet. Topography ranges from nearly level in the vicinity of the existing water tank, to gently sloping upward toward a small, level plateau to the west that has been historically graded. A small, shallow drainage swale is present near the center of the study area, narrowly meandering in a north to south alignment. The drainage was dry at the time of the field survey.

VEGETATION

Vegetation within the study area may be primarily characterized as Northern coastal scrub, largely typical of the region although much of the vegetation appears to have been disturbed during quarry activities. Dominant species include native shrubs such as coyote brush (*Baccharis pilularis*), California coffeeberry (*Frangula californica*), bracken fern (*Pteridium aquilinum*), and the highly invasive, non-native Pampas grass (*Cortaderia jubata*), which is abundant throughout the region. Openings in the scrub and adjacent portions of the property are mostly grasslands that consist of sparse to patchy herbaceous species interspersed with scattered shrubs, herbs and grasses, both native and non-native. Where soil disturbance is greatest, as in the immediate vicinity of the existing water tank and the scraped area just to the west of the drainage swale, a sparse to dense cover of non-native plant species characteristic of ruderal vegetation is present. Ruderal vegetation on site is dominated by weedy species such as sweet fennel (*Foeniculum vulgare*), wild oats (*Avena fatua*), rip-gut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Rough cat's-ear (*Hypochaeris radicata*), crimson clover (*Trifolium incarnatum*), wild teasel (*Dipsacus fullonum*), Harding grass (*Phalaris aquatica*), and Italian thistle (*Carduus pycnocephalus*). Also present to a lesser extent are English plantain (*Plantago lanceolata*), cut-leaved plantain (*Plantago coronopus*), Italian ryegrass (*Festuca perennis*), and bristly ox-tongue (*Helminthotheca echioides*), among others.

In addition, a conspicuous stand of fairly dense spreading rush (*Juncus patens*), was noted on the flat between the existing water tank and the northern portion of the drainage swale (Appendix A, Figure 4).

The wetland indicator status of plant species detected in the study area was determined following Lichvar, et al. (2014). A list of all species detected within the study area and their wetland indicator status are presented in Table 1.

Table 1. Wetland Indicator Status of Plant Species Detected on the Project Site

INDICATOR CODE	WETLAND TYPE	COMMENT
OBL	Obligate Wetland	Occurs almost always (estimated probability 99%) under natural conditions in wetlands.
FACW	Facultative Wetland	Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
FACU	Facultative Upland	Usually occurs in non-wetlands (estimated probability 67%-99%), but occasionally found on wetlands (estimated probability 1%-33%).
UPL	Obligate Upland	Occurs in wetlands in another region, but occurs almost always (estimated probability 99%) under natural conditions in non-wetlands in the regions specified. If a species does not occur in wetlands in any region, it is not on the National List.
NI	No indicator	Insufficient information was available to determine an indicator status.

Table 1 (cont.)

SCIENTIFIC NAME	**COMMON NAME**	**WETLAND INDICATOR STATUS***
Achillea millefolium	yarrow	FACU
Briza maxima	rattlesnake grass	Not Listed
Bromus diandrus	rip-gut brome	Not Listed
Bromus hordeaceus	soft chess	FACU
Baccharis pilularis	coyote brush	Not Listed
Carduus pycnocephalus	Italian thistle	Not Listed
Carex harfordia	Harford's sedge	OBL
Ceanothus thyrsiflorus	blue blossom	Not Listed
Cortaderia jubata	pampas grass	FACU
Danthonia californica	California oatgrass	FACU
Elymus glaucus ssp. *glaucus*	blue wild rye	FACU
Festuca perennis (*Lolium*)	Italian ryegrass	FAC
Geranium molle	crane's bill	Not Listed
Helminthotheca echioides	bristly ox-tongue	Not Listed
Hypochaeris radicata	rough cat's-ear	FACU
Juncus effusus var. *pacificus*	Pacific rush	FACW
Juncus patens	spreading rush	FACW
Linum bienne	flax	Not Listed
Lotus corniculatus	bird's-foot trefoil	FAC
Madia sativa	coast tarweed	Not Listed
Morella californica	wax myrtle	FACW
Plantago coronopus	cut-leaf plantain	FACW
Plantago lanceolata	English plantain	FAC
Pteridium aquilinum	bracken fern	FACU
Rubus ursinus	California blackberry	FACW
Rumex acetosella	sheep sorrel	FACU

* Wetland indicator status based on Lichvar, et.al. 2014

HYDROLOGY

Hydrology of the study area is influenced by direct precipitation, surface runoff from adjacent lands, and moist air from the Pacific Ocean, a little more than one mile to the west. Along the coast, frequent fogs provide a significant moisture source due to fog drip and decreased evaporation rates. A small, ephemeral drainage swale is present along the center of the study area (Appendix A, Figure 4). The swale originates in the northern part of the site and consists of a low-gradient, very shallow, somewhat poorly defined channel with very low banks generally no more than a few inches high. The channel is approximately three feet wide on average. Minor scouring erosion within the channel is discontinuous and very shallow, indicating that the swale supports only ephemeral, seasonal flow events. Within the channel there is no evidence of surface seepage of groundwater. The northern, upper portion of the swale may have been previously excavated for the purpose of diverting runoff from the slope to the immediate west. An historic aerial photograph (Appendix A, Figure 3) indicates that the area around the head of the swale was heavily disturbed by quarry grading activities.

Within the study area, the swale trends in a southerly direction for approximately 229 feet (Appendix A, Figure 4). After leaving the study area the swale continues south for about 340 feet before emptying into a sediment retention pond, an impoundment constructed when the quarry was active. Overflow discharges from the impoundment flow through a culvert under Bean Hollow Road and through what appears to be a straight ditch until discharging into Butano Creek. From there, the creek meanders to the north and west, eventually emptying into the Pacific Ocean adjacent to Pescadero Marsh less than two miles to the northwest.

Outside of the drainage swale, no other direct evidence of wetland hydrology was detected in the study area although, locally, hydrology may be influenced by a fog-drip microclimate supporting wetland vegetation beneath the shrub/tree canopy at data point P-5 (Appendix B).

SOILS

During previous quarry operations, surface soils were removed from areas prior to mining and were to be stored for reclamation purposes (Martin Carpenter Associates, 1991). No record of past reclamation activities within the study area was reviewed during the compilation of the present report.

Based on information provided by the USDA Web Soil Survey online mapper (USDA 2014), three soil units are mapped within the study area, including Botella loam, sloping, seeped, Elkhorn sandy loam, moderately steep, eroded, and Colma sandy loam, steep, eroded. These soil types are described in more detail below.

Botella loam, sloping, seeped occurs on benches, alluvial fans, and terraces from 50 to 800 feet in elevation. Mean annual precipitation is 20 to 30 inches, mean annual air temperature is 57 to 59 degrees F, and the frost-free period is from 250 to 350 days. Within the mapping unit, Botella and similar soils make up about 85 percent with minor components of about 15 percent. The parent material is alluvium. Slopes are 7 to 15 percent, runoff is medium. These soils are

moderately well drained. The depth to water table is more than 80 inches, and the frequency of flooding or ponding is none. Hydric soils may be present in minor components within this soil type (USDA 2014). Wetland data points P-1 through P-4 were located within a portion of the site mapped as Botella loam, sloping, seeped (USDA 2014). No evidence of hydric soils were detected within the study area during the field survey.

Elkhorn sandy loam, moderately steep, eroded occurs on terraces from 50 to 2,380 feet in elevation. Mean annual precipitation is 14 to 22 inches, mean annual air temperature is 57 degrees F, and the frost-free period is 270 days. Within the mapping unit, Elkhorn and similar soils make up about 85 percent with minor components of about 15 percent. The parent material is alluvium. Slopes are 11 to 21 percent, runoff is medium. These soils are well drained. The depth to water table is more than 80 inches, and the frequency of flooding or ponding is none (USDA 2014). Wetland data point P-5 was located within a portion of the site mapped as Elkhorn sandy loam, moderately steep, eroded (USDA 2014).

Colma sandy loam, steep, eroded occurs on terraces from 50 to 600 feet in elevation. Mean annual precipitation is 27 inches, mean annual air temperature is 54 degrees F, and the frost-free period is from 300 to 350 days. Within the mapping unit, Colma and similar soils make up about 85 percent with minor components of about 15 percent. The parent material is marine sediments. Slopes are 21 to 41 percent, runoff is high. These soils are well drained. The depth to water table is more than 80 inches, and the frequency of flooding or ponding is none (USDA 2014).

The Botella loam, sloping, seeped, and Elkhorn sandy loam, moderately steep, eroded, soil units are considered hydric only within components or inclusions that represent just 5% and 2% of the mapping units respectively, where soils are frequently ponded for long or very long duration during the growing season (USDA 2014). Colma sandy loam, steep, eroded is not listed as a hydric soil.

Soils were sampled at a total of five data points within the study area during the field survey and were uniformly light brown colored sandy loam, generally with a color of 7.5 YR 4/4 (Munsell Color 2000), with angular broken sandstone pieces above a sandstone bedrock that was not penetrable with a hand shovel. The field investigation produced no evidence of the presence of hydric soils, based on a light-colored soil matrix and an absence of organic material layers in the upper horizon of sandy soils.

Wetland field data forms are provided in Appendix B.

Findings: Regulatory Implications of Wetlands and Other Waters

Wetlands, riparian areas, and other aquatic vegetation communities are considered sensitive biological resources and normally fall under the jurisdiction of several regulatory agencies, including protection under Section 404 of the federal Clean Water Act, and Section 1600, *et seq.* of the California Fish and Game Code.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) exerts jurisdiction over "waters of the U.S.", including, but not limited to, all waters which are subject to the ebb and flow of tide, wetlands, lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, natural ponds, and tributaries of the above features. Specifically, the USACE regulates dredging and placement of fill into waters of the U.S., including wetlands, under Section 404 of the federal Clean Water Act. Permitting is conducted with the oversight of the U.S. Environmental Protection Agency (EPA). The U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries Service) has input on permitting decisions by the USACE when an activity could affect wetland-dependent federally listed species.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes and similar areas, are defined by the USACE as "those areas that are inundated or saturated by surface or ground water 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" (33 CFR 328.3 [b]; 40 CFR 230.3 [t]). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology as determined by field investigation) must be present for a site to be classified as a wetland by the USACE (Environmental Laboratory 1987).

The extent of waters of the U.S. is generally defined as that portion which falls within the limits of "ordinary high water." Field indicators of ordinary high water include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. Typically, the width of waters corresponds to the two-year flood event.

Although the drainage swale within the Pescadero Quarry study area does not support significant wetland vegetation, it is expected to fall under the jurisdiction of the USACE and other regulatory agencies as an unvegetated Waters of the U.S. based on observable field characteristics including a defined channel, scouring, and minor sedimentary deposits. Within the study area the channel is approximately 229 feet long by three feet wide within the study area, totaling 687 square feet (Figure 4).

Regional Water Quality Control Board

The San Francisco Bay Regional Water Quality Control Board (RWQCB), under the auspices of the Porter-Cologne Water Act (SWRCB 2011), defines "waters of the state" as any surface water or groundwater, including saline waters within the boundaries of the state. In addition, it defines "water quality control" as the regulation of any activity which may affect the quality of the waters of the state and includes the prevention and correction of water pollution and nuisance water. RWQCB statutes under the Act include the regulation of storm water runoff associated

with construction projects and other activities that could discharge soil, pollutants, or other materials into waters of the state.

California Department of Fish and Wildlife

Riparian habitats are considered by State and federal regulatory agencies to represent a sensitive and declining resource. Wetlands and riparian areas often serve important biological functions by providing nesting, breeding, foraging, and spawning habitat for a wide variety of resident and migratory wildlife species. Impacts to stream channels with a defined bed and bank are addressed specifically by the California Fish and Game Code. In addition to the stream channel itself, riparian vegetation adjacent to waterways is generally considered as waters of the State, extending to the outer drip-line of the canopy.

Within the study area, riparian vegetation along the drainage swale is very limited, including a single wax myrtle (*Morella californica*), and a small patch of arroyo willow (*Salix lasiolepis*) (Figure 3). These features are considered to be sensitive riparian vegetation that are expected to fall under the regulatory jurisdiction of the California Department of Fish and Wildlife.

San Mateo County Local Coastal Program (LCP)

The sensitive habitats component of the San Mateo County Local Coastal Program (LCP) defines a 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 (San Mateo County 2013). Such wetlands can include mudflats (barren of vegetation), marshes, and swamps, and 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), marginal to lakes, ponds, and man-made 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 vernally wet areas where the soils are not hydric.

According to the LCP, 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% cover of some combination of these plants, unless it is a mudflat."

Additionally, the LCP definition of sensitive habitats includes all perennial and intermittent streams and their tributaries, as well as, but not limited to, riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs, and habitats supporting rare, endangered, and unique species (San Mateo County 2013).

Although none of the plant species described as typical wetland species in the LCP are present within the study area, the on-site drainage swale is expected to fall under the LCP definition as a

wetland based on the presence of wetland hydrology within the stream channel. Also included as LCP wetlands are two wetland plant species including an individual of wax myrtle (*Morella californica*), and a small patch of arroyo willow (*Salix lasiolepis*), both associated with the drainage swale as mapped on Figure 3. Furthermore, a stand of vegetation dominated by arroyo willow and wax myrtle is present in the southwestern part of the study area, comprising approximately 4,000 square feet. Although it is not associated with the onsite drainage, it also constitutes a wetland under the LCP by the dominance of two plant species considered to be wetland vegetation. Based on federal guidelines (Lichvar, et al. 2014), the wetland status for both wax myrtle and arroyo willow is FACW, indicating that each species usually occurs in wetlands at an estimated probability of 67%-99%, but are occasionally found in non-wetlands.

Additionally, during the initial survey a stand of spreading rush (*Juncus patens*), approximately 1,500 square feet in area was noted in the vicinity of the existing water tank (Figure 4). The spreading rush stand, as mapped, was roughly estimated to support approximately 50 percent cover of spreading rush during the field survey (see data point P-4). Although this native species is often seen in dry soil conditions, it is also encountered in moist soil conditions. The indicator status of spreading rush is FACW, meaning it usually occurs in wetlands (estimated probability 67%-99%), but is sometimes found in non-wetlands (Lichvar, et al., 2014).

The County, under the San Mateo County LCP, and following the CCC guidelines, has the discretion to identify any feature as a wetland if it satisfies just one of the three wetland parameters including wetland hydrology, wetland soils, or a preponderance of wetland vegetation. As such, we expect that these features will also fall under the jurisdiction of the California Coastal Commission under the auspices of the San Mateo County LCP because they are clearly dominated by wetland plant species.

Recommendations

We recommend that a copy of this report be addressed to the U.S. Army Corps of Engineers and the California Department of Fish and Wildlife with a request for review and concurrence with the findings presented herein. If a site visit is deemed necessary by regulatory staff subsequent to their review of this document, we would be happy to meet with personnel in the field.

Regardless of the status of USACE or CDFW jurisdiction, it is nevertheless expected that the Regional Water Quality Control Board (RWQCB), Region 2, San Francisco Bay, would consider the drainage within the project area to be waters of the State of California.

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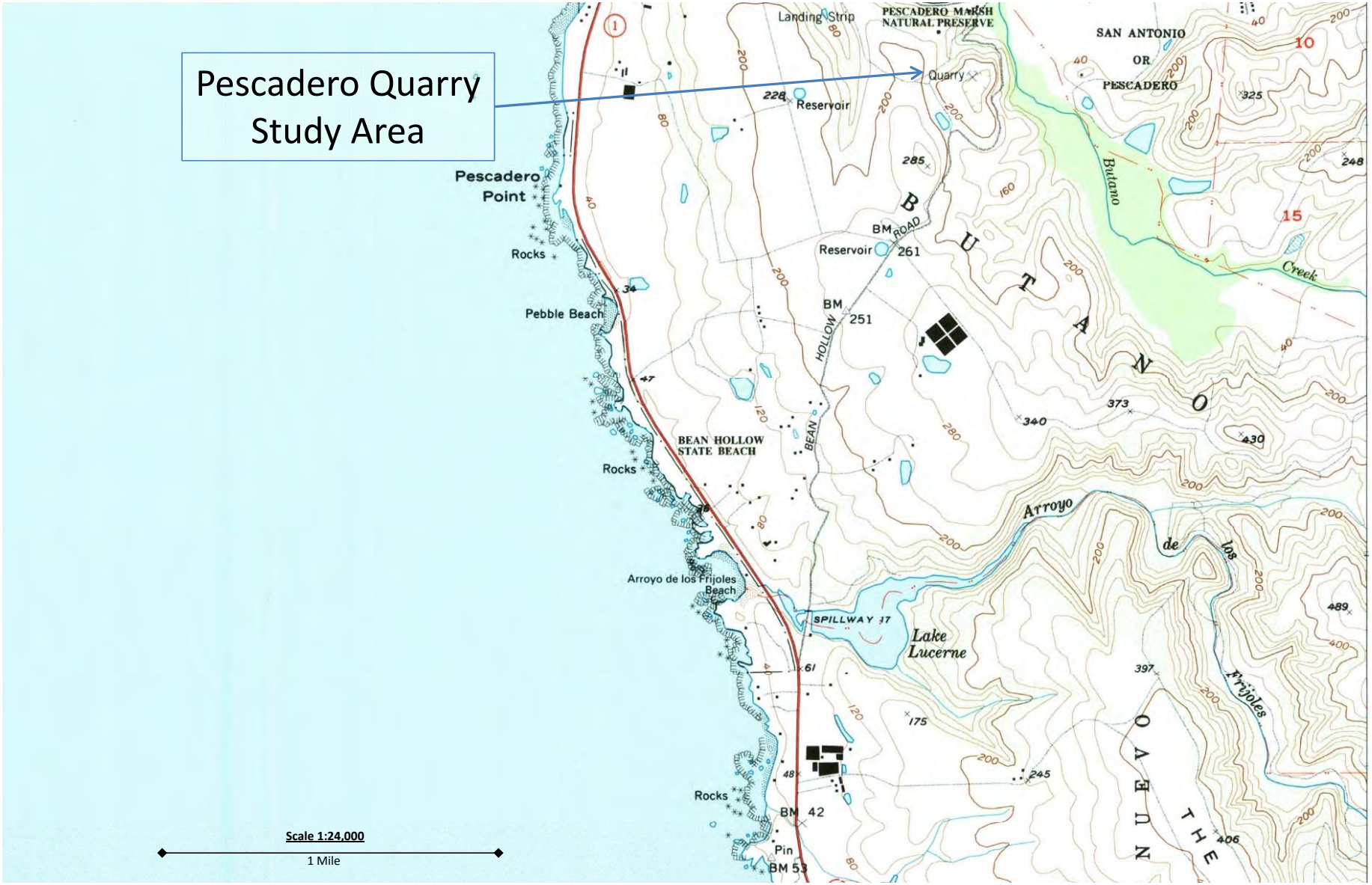
APPENDIX A

Figures 1-4



No.	Date	Revision	Approved

BioMaAS

Date: 12-18-14
Surveyed: CT
Drafted: TJ
Checked: CT

Pescadeo Quarry Study Area

Pigeon Point Quadrangle
California-San Mateo Co.
7.5 Minute Series (Topographic)

Figure 1

Project

No.	Date	Revision	Approved

BioMaAS

Date: 12-18-14
Surveyed: CT
Drafted: TJ
Checked: CT

Pescadeo Quarry Wetland Delineation Area (Study Area)
Location Map

Figure 2

Project

Legend

Limits of Study Area (Approx. 47,037 sq.ft. or 1.08 ac. – Location Approximate. Not to Scale)

N

No.	Date	Revision	Approved

BioMaAS

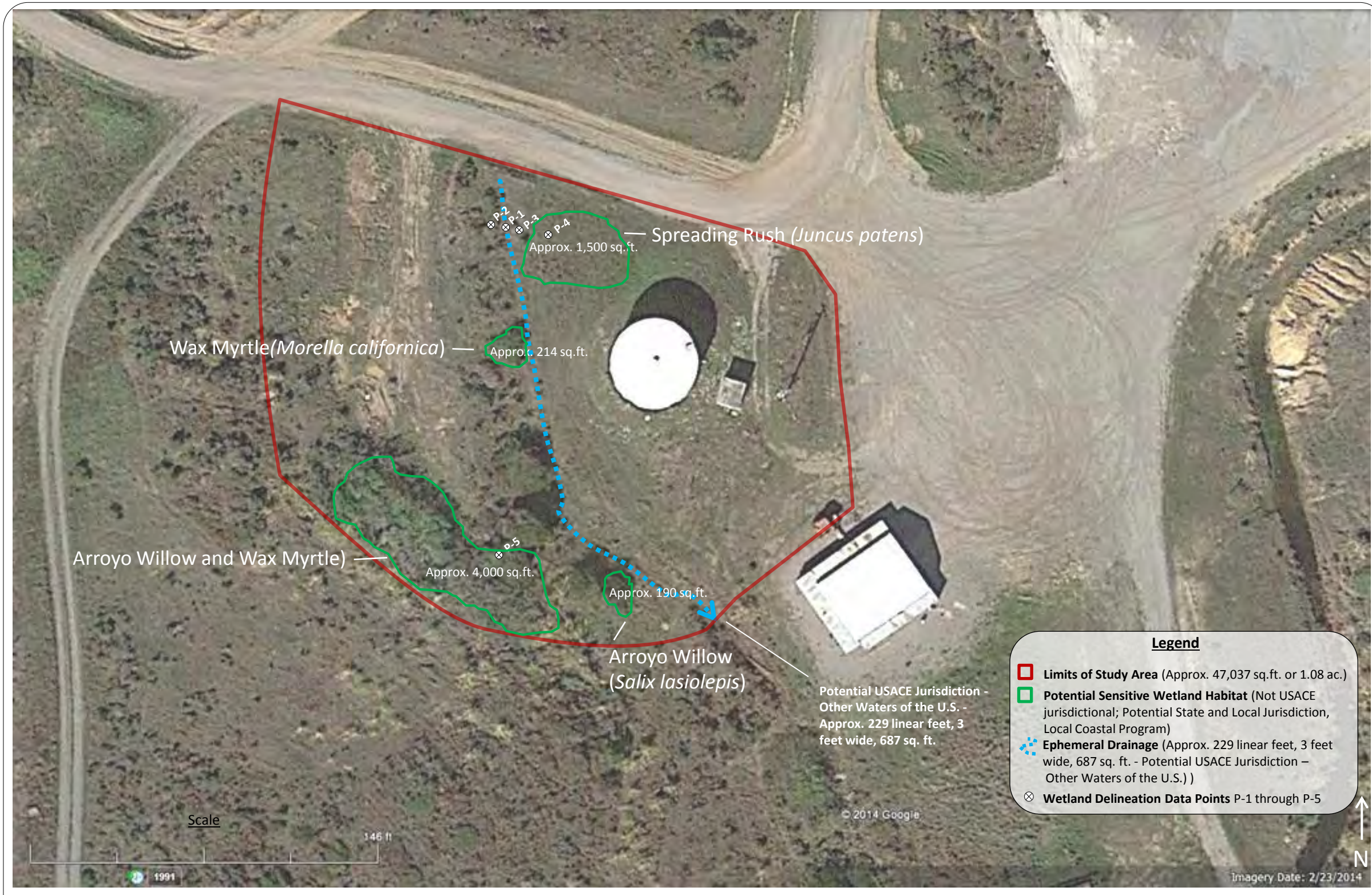
Date: 12-18-14
Surveyed: CT
Drafted: TJ
Checked: CT

Pescadero Quarry 1963, showing Bean Hollow Road and Sediment Retention Basin

UC Santa Cruz (http://guides.library.ucsc.edu/maps/aerial)

Figure 3

Project



No.	Date	Revision	Approved

BioMaAS

Date: 12-23-14
Surveyed: CT
Drafted: TJ
Checked: CT

Pescadero Quarry Wetland Delineation
Potentially Sensitive Habitat Components
California Coastal Commission and San Mateo Local Coastal Program

Figure 4

Project

APPENDIX B

Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pescadero Quarry City/County: San Mateo Sampling Date: 11/12/14

Applicant/Owner: County of San Mateo State: CA Sampling Point: P-1

Investigator(s): C. Thayer - BioMaAS Section, Township, Range: R5W/T8S (unsectioned)

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): < 5

Subregion (LRR): LRRC Lat: 37.246359 Long: -122.399782 Datum: WGS 84

Soil Map Unit Name: Botella Loam, sloping, seeped NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ✓	
Hydric Soil Present?	Yes ○	No ✓	**Is the Sampled Area within a Wetland?** Yes ○ No ○
Wetland Hydrology Present?	Yes ✓	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ø			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Baccharis pilularis	10	Y	NL
2.			
3.			
4.			
5.			
Total Cover:	10%		
Herb Stratum			
1. Elymus glaucus	40	Y	FACU
2. Danthonia californica	10	Y	FACU
3. Rubus ursinus	5	Y	FACW
4. Achillea millefolium	5	Y	FACU
5. Rumex crispus	5	Y	FAC
6. Symphiotrichum chilensis	2	-	FAC
7.			
8.			
Total Cover:	67%		
Woody Vine Stratum			
1. Ø			
2.			
Total Cover:	67%		

% Bare Ground in Herb Stratum 33 % % Cover of Biotic Crust < 1 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ✓

Remarks:

SOIL

Sampling Point: P-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5 YR 4/4		Ø				sandy loam	bedrock at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ✓

Remarks: Hard sandstone impenetrable at 8". No organic layers in sandy soil, light-colored matrix

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ✓ Depth (inches):

Water Table Present? Yes ○ No ✓ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ✓ Depth (inches):

Wetland Hydrology Present? Yes ✓ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: P-1 located in center of shallow swale channel (ephemeral, dry)

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PEscadero Quarry City/County: San Mateo Sampling Date: 11/12/14
Applicant/Owner: County of San Mateo State: CA Sampling Point: P-2
Investigator(s): C Thayer - BioMaAS Section, Township, Range: R5W/T8S (unsectioned)
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 10 %
Subregion (LRR): LRRC Lat: 37.246359 Long: -122.399794 Datum: WGS 84
Soil Map Unit Name: Botella loam, sloping, seeped NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ○ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ○
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ✓	
Hydric Soil Present?	Yes ○	No ✓	**Is the Sampled Area within a Wetland?** Yes ○ No ○
Wetland Hydrology Present?	Yes ○	No ✓	

Remarks: 6' west of P-1 data point outside of ephemeral channel
30% slope

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. 0			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Baccharis pilularis	15	Y	NL
2.			
3.			
4.			
5.			
Total Cover:	15 %		
Herb Stratum			
1. Danthonia californica	25	Y	FACU
2. Elymus glaucus	25	Y	FACU
3. Rubus ursinus	5	Y	FACW
4. Plantago lanceolata	5	Y	FAC
5.			
6.			
7.			
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1. 0			
2.			
Total Cover:	60 %		

% Bare Ground in Herb Stratum 40 % % Cover of Biotic Crust < 1 %

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ✓

Remarks:

SOIL

Sampling Point: P-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	7.5YR 4/4		0				sandy loam	see below

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ✓

Remarks:

Sandstone bedrock impenetrable at 8" No organic layers in sandy soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ✓ Depth (inches):

Water Table Present? Yes ○ No ○ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches):

Wetland Hydrology Present? Yes ○ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

P-2 located outside of shallow swale channel

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pescadero Quarry City/County: San Mateo Sampling Date: 11/12/14
Applicant/Owner: County of San Mateo State: CA Sampling Point: P-3
Investigator(s): C Thayer - BioMaAS Section, Township, Range: R5W / T8S (unsectioned)
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): - Slope (%): 0
Subregion (LRR): LRRC Lat: 37.246356 Long: -122.399770 Datum: WGS 84
Soil Map Unit Name: Botella loam, sloping, seeped NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	
Hydric Soil Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: 6' east of P-1, data point outside of ephemeral channel

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2. Ø			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Bromus hordeaceus	15	Y	FACU
2. Juncus patens	10	Y	FACW
3. Lotus corniculatus	10	Y	FAC
4. Bromus diandrus	10	Y	NL
5. Trifolium incarnatum	5	Y	NL
6. Hirschfeldia incana	5	Y	NL
7. Madia sativa	5	Y	NL
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1. Ø			
2.			
Total Cover:	60 %		

% Bare Ground in Herb Stratum 40 % % Cover of Biotic Crust <1 %

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 29% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: Location is outside of conspicuous stand of Juncus patens

SOIL

Sampling Point: P-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5 YR 4/4		—				Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ✓

Remarks: Hard sandstone impenetrable at 8". No organic layers in sandy soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient) Ø

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ✓ Depth (inches):

Water Table Present? Yes ○ No ✓ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ✓ Depth (inches):

Wetland Hydrology Present? Yes ○ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of ponding or sediment deposits on flat

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pescadero Quarry City/County: San Mateo Sampling Date: 11/12/14

Applicant/Owner: County of San Mateo State: CA Sampling Point: P-4

Investigator(s): C Thayer - BioMaAS Section, Township, Range: R5W/T8S (unsectioned)

Landform (hillslope, terrace, etc.): level flat Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): LRRC Lat: 37.246346 Long: -122.399719 Datum: WGS 84

Soil Map Unit Name: Botella Loam, sloping, seeped NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ✓	
Hydric Soil Present?	Yes ○	No ✓	**Is the Sampled Area within a Wetland?** Yes ○ No ✓
Wetland Hydrology Present?	Yes ○	No ✓	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ø			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Ø			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Juncus patens	50	Y	FACW
2. Bromus hordeaceus	30	Y	FACU
3. Vulpia myuros (Festuca)	10		FACU
4.			
5.			
6. Briza maxima	5		NL
7. Trifolium incarnatum	<5		NL
8.			
Total Cover:	%		
Woody Vine Stratum			
1. Ø			
2.			
Total Cover:	99 %		

% Bare Ground in Herb Stratum <5 % % Cover of Biotic Crust % %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ✓

Remarks:

SOIL

Sampling Point: P-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5 YR 4/4		-				Sandy loam	see below

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ✓

Remarks:

Light colored sandy loam with no organic layer in upper profile in sandy soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ✓ Depth (inches):

Water Table Present? Yes ○ No ✓ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ✓ Depth (inches):

Wetland Hydrology Present? Yes ○ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pescadero Quarry City/County: San Mateo Sampling Date: 11/12/14

Applicant/Owner: County of San Mateo State: CA Sampling Point: P-5

Investigator(s): C. Thayer - BioMaAS Section, Township, Range: R5W/T8S (unsectioned)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Level Slope (%): <5%

Subregion (LRR): LRRC Lat: 37.245964 Long: -122.399796 Datum: WGS 84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ○	
Hydric Soil Present?	Yes ○	No ✓	**Is the Sampled Area within a Wetland?** Yes ○ No ○
Wetland Hydrology Present?	Yes ○	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	40%	Y	FACW
2. Morella californica	5	Y	FACW
3.			
4.			
Total Cover:	45 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Carex harfordii	10	Y	OBL
2. Rubus ursinus	5	Y	FACW
3. Juncus effusus v. pacificus	5	Y	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	60 %		

% Bare Ground in Herb Stratum 80 % % Cover of Biotic Crust 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ○

Remarks:

SOIL

Sampling Point: P-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 3/4		—				sandy loam	see below

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ○

Remarks: Light-colored soil matrix; no organic layers in upper profile in sandy soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
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- ☐ Salt Crust (B11)
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- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ☑ Depth (inches):

Water Table Present? Yes ○ No ☑ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ☑ Depth (inches):

Wetland Hydrology Present? Yes ○ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Minor area (5%) biotic crust. Hydrology may be influenced by fog drip microclimate beneath shrub/tree canopy.

Appendix C

Site Soil Report

and

Hydric Soils List

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Mateo Area, California

Pescadero Quarry

November 7, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

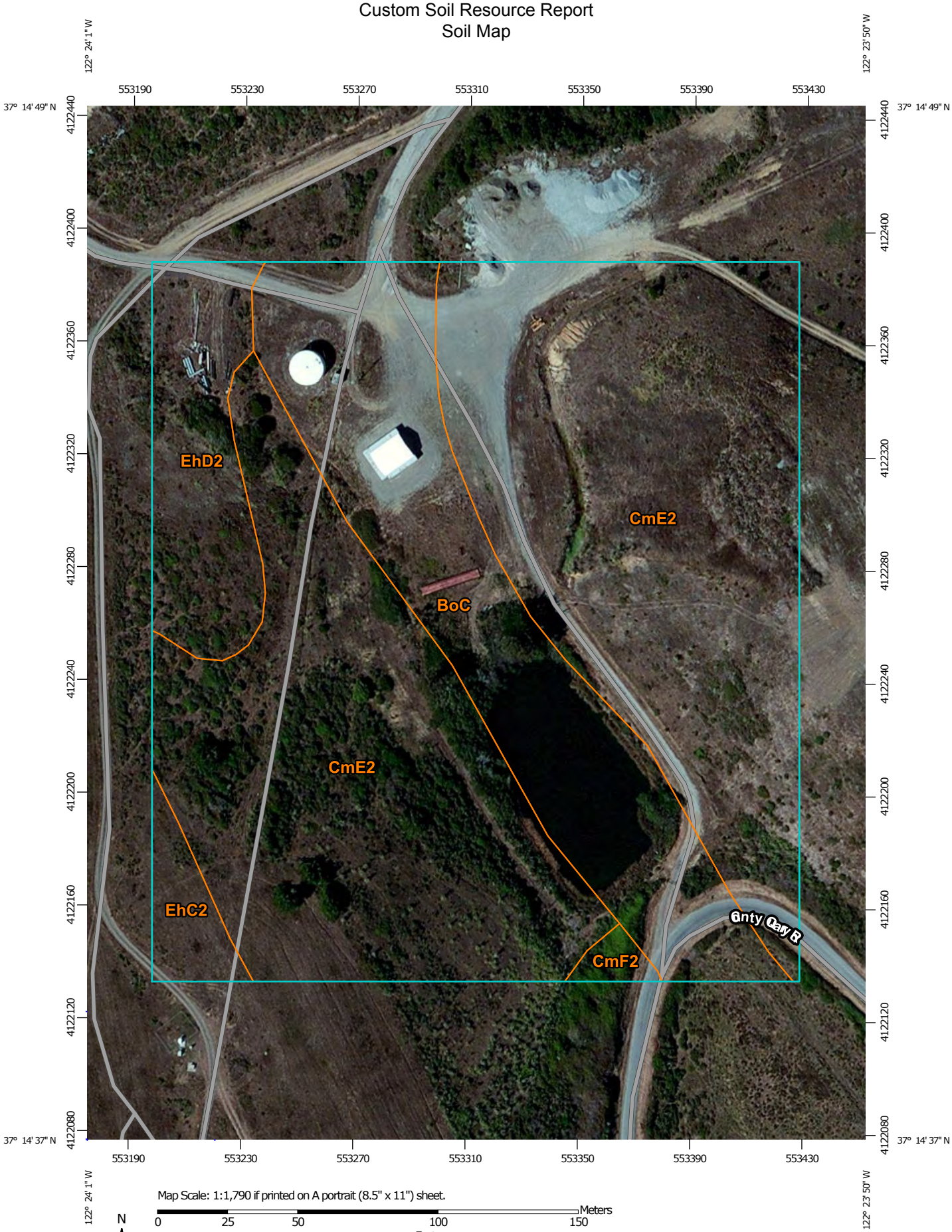
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 8, Sep 17, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 26, 2010—Sep 17, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

San Mateo Area, California (CA637)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BoC	Botella loam, sloping, seeped	3.2	22.2%
CmE2	Colma sandy loam, steep, eroded	9.7	66.8%
CmF2	Colma sandy loam, very steep, eroded	0.1	0.7%
EhC2	Elkhorn sandy loam, sloping, eroded	0.3	2.3%
EhD2	Elkhorn sandy loam, moderately steep, eroded	1.2	8.1%
Totals for Area of Interest		**14.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Mateo Area, California

BoC—Botella loam, sloping, seeped

Map Unit Setting

National map unit symbol: h9vb
Elevation: 50 to 800 feet
Mean annual precipitation: 20 to 30 inches
Mean annual air temperature: 57 to 59 degrees F
Frost-free period: 250 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Botella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Botella

Setting

Landform: Benches, alluvial fans, terraces
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 28 inches: loam
H2 - 28 to 60 inches: silty clay loam

Properties and qualities

Slope: 7 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear

Across-slope shape: Linear

Soquel
Percent of map unit: 5 percent

Dublin
Percent of map unit: 5 percent

CmE2—Colma sandy loam, steep, eroded

Map Unit Setting
National map unit symbol: h9w0
Elevation: 50 to 600 feet
Mean annual precipitation: 27 inches
Mean annual air temperature: 54 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Colma and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colma

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine sediments

Typical profile
H1 - 0 to 10 inches: sandy loam
H2 - 10 to 30 inches: loam
H3 - 30 to 60 inches: fine sandy loam

Properties and qualities
Slope: 21 to 41 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C

Minor Components

Corralitos
Percent of map unit: 5 percent

Botella
Percent of map unit: 5 percent

Gullied land
Percent of map unit: 5 percent

CmF2—Colma sandy loam, very steep, eroded

Map Unit Setting
National map unit symbol: h9w1
Elevation: 50 to 600 feet
Mean annual precipitation: 27 inches
Mean annual air temperature: 54 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Colma and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colma

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine sediments

Typical profile
H1 - 0 to 10 inches: sandy loam
H2 - 10 to 20 inches: loam
H3 - 20 to 60 inches: fine sandy loam

Properties and qualities
Slope: 41 to 75 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C

Minor Components

Gullied land

Percent of map unit: 5 percent

Corralitos

Percent of map unit: 5 percent

Botella

Percent of map unit: 5 percent

EhC2—Elkhorn sandy loam, sloping, eroded

Map Unit Setting

National map unit symbol: h9wv
Elevation: 50 to 2,380 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Elkhorn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkhorn

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 25 inches: sandy loam
H2 - 25 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 11 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups
Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Minor Components

Denison
Percent of map unit: 5 percent

Tierra
Percent of map unit: 5 percent

Baywood
Percent of map unit: 5 percent

EhD2—Elkhorn sandy loam, moderately steep, eroded

Map Unit Setting
National map unit symbol: h9ww
Elevation: 50 to 2,380 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Elkhorn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkhorn

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile
H1 - 0 to 25 inches: sandy loam

H2 - 25 to 60 inches: sandy clay loam

Properties and qualities

Slope: 11 to 21 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Minor Components

Denison

Percent of map unit: 5 percent

Baywood

Percent of map unit: 5 percent

Tierra

Percent of map unit: 3 percent

Unnamed

Percent of map unit: 2 percent
Landform: Fan remnants

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Hydric Soils

San Mateo Area, California

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
BdA:					
Botella loam, nearly level, imperfectly drained	Unnamed	5	---	Yes	2B3
BdB:					
Botella loam, gently sloping, imperfectly drained	Unnamed	5	---	Yes	2B3
BfB:					
Botella loam, nearly level and gently sloping, poorly d rained variant	Botella variant	85	Alluvial fan, Bench, Terrace	Yes	2B3
BoC:					
Botella loam, sloping, seeped	Unnamed	5	---	Yes	2B3
Cf:					
Coastal beaches	Coastal beaches	85	Beach	Yes	4
CmD2:					
Colma sandy loam, moderately steep, eroded	Unnamed	1	---	Yes	2B3
CoA:					
Coquille loam, nearly level, saline	Coquille	85	Tidal flat	Yes	2B3, 4
CrA:					
Corralitos loamy sand, nearly level, imperfectly draine d	Unnamed	2	---	Yes	4
	Unnamed	1	---	Yes	2B1
CtA:					
Corralitos sandy loam, nearly level, imperfectly draine d	Unnamed	1	---	Yes	2B1
	Unnamed	1	---	Yes	4
CtB:					
Corralitos sandy loam, gently sloping, imperfectly drai ned	Unnamed	1	---	Yes	2B1
CuA:					
Corralitos sandy loam, over gravel, nearly level, imper fectly drained	Unnamed	1	---	Yes	2B1
CyA:					
Corralitos sandy loam, over clay, nearly level, imperfe ctly drained	Unnamed	1	---	Yes	2B1
DdA:					
Denison clay loam, nearly level, imperfectly drained	Unnamed	1	---	Yes	2B3

Hydric Soils

San Mateo Area, California

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
DuA:					
Dublin clay, nearly level	Unnamed	1	---	Yes	2B3
DuB:					
Dublin clay, gently sloping	Unnamed	1	---	Yes	2B3
DuC2:					
Dublin clay, sloping, eroded	Unnamed	1	---	Yes	2B3
DwA:					
Dublin clay, nearly level, imperfectly drained	Unnamed	2	---	Yes	2B3
DwB:					
Dublin clay, gently sloping, imperfectly drained	Unnamed	2	---	Yes	2B3
EhD2:					
Elkhorn sandy loam, moderately steep, eroded	Unnamed	2	---	Yes	2B3
EtB:					
Elkhorn sandy loam, thick surface, gently sloping	Unnamed	1	---	Yes	2B3
FaA:					
Farallone loam, nearly level	Unnamed	1	---	Yes	2B2
FcC2:					
Farallone coarse sandy loam, sloping, eroded	Unnamed	1	---	Yes	2B2
FsB:					
Farallone coarse sandy loam, over coarse sands, gently sloping, seeped	Miramar	4	---	Yes	2B2
GdC2:					
Gazos loam, dark, sloping, eroded	Unnamed	2	---	Yes	2B3
Gu:					
Gullied land (alluvial soil material)	Unnamed	5	---	Yes	4
Gv:					
Gullied land (gazos-lobitos soil material)	Unnamed	5	---	Yes	4
LoA:					
Lockwood loam, nearly level, imperfectly drained	Unnamed	5	---	Yes	2B3
LvB2:					
Lockwood loam, brown subsoil variant, gently sloping, e roded	Unnamed	5	---	Yes	2B3, 3

Hydric Soils

San Mateo Area, California

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
LwB: Lockwood loam, gently sloping, seeped	Unnamed	5	---	Yes	2B3, 3
LwC: Lockwood loam, sloping, seeped	Unnamed	5	---	Yes	2B3, 3
Ma: Mixed alluvial land	Unnamed	5	---	Yes	4
PpD2: Pomponio loam, moderately steep, eroded	Unnamed	2	---	Yes	2B3, 3
SmA: Soquel loam, nearly level, imperfectly drained	Unnamed	1	---	Yes	2B3
SpB: Soquel loam, gently sloping, poorly drained	Unnamed	1	---	Yes	2B3
SrA: Soquel loam, over clay, nearly level, poorly drained	Unnamed	1	---	Yes	2B3
SsA: Soquel loam, over clay, nearly level, imperfectly drain ed	Unnamed	1	---	Yes	2B3
SwD2: Sweeney clay loam, moderately steep, eroded	Unnamed	1	---	Yes	2B3
SzD2: Sweeney stony clay loam, moderately steep, eroded	Unnamed	1	---	Yes	2B3
SzE2: Sweeney stony clay loam, steep, eroded	Unnamed	1	---	Yes	2B3
TeB: Tierra loam, gently sloping	Unnamed	1	---	Yes	2B3
TeC2: Tierra loam, sloping, eroded	Unnamed	2	---	Yes	2B3
TeD2: Tierra loam, moderately steep, eroded	Unnamed	2	---	Yes	2B3
TeD3: Tierra loam, moderately steep, severely eroded	Unnamed	1	---	Yes	2B3

Hydric Soils

San Mateo Area, California

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
TsC2:					
Tierra sandy loam, acid variant, sloping, eroded	Unnamed	2	Hill	Yes	2B3
TuC2:					
Tunitas clay loam, sloping, eroded	Unnamed	5	---	Yes	2B3
TuD2:					
Tunitas clay loam, moderately steep, eroded	Unnamed	5	---	Yes	2B3
TwA:					
Tunitas clay loam, nearly level, imperfectly drained	Tunitas	75	Alluvial fan, Flood plain	Yes	2B2
	Unnamed	10	---	Yes	2B3
TwB:					
Tunitas clay loam, gently sloping, imperfectly drained	Unnamed	5	---	Yes	2B3
TxA:					
Tunitas loam, nearly level	Unnamed	2	---	Yes	2B3
WaA:					
Watsonville clay loam, nearly level	Unnamed	5	---	Yes	3
WaB:					
Watsonville clay loam, gently sloping	Unnamed	5	---	Yes	3
WmA:					
Watsonville loam, nearly level	Unnamed	5	---	Yes	3
WmB:					
Watsonville loam, gently sloping	Unnamed	3	---	Yes	3
WnA:					
Watsonville loam, nearly level, poorly drained	Unnamed	5	---	Yes	3
WnB:					
Watsonville loam, gently sloping, poorly drained	Unnamed	5	---	Yes	3
WoB:					
Watsonville loamy sand, gently sloping, overblown	Unnamed	1	---	Yes	2B3
WsB:					
Watsonville sandy loam, gently sloping	Unnamed	1	---	Yes	3

Hydric Soils

San Mateo Area, California

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
WsC2:					
Watsonville sandy loam, sloping, eroded	Unnamed	1	---	Yes	2B3

Explanation of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   B. are poorly drained or very poorly drained and have either:
      1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
      2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
      3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

Appendix D

Site Photographs

Photo 1.

View northwest showing head of ephemeral drainage swale.

Photo 2.

View east showing portion of spreading rush stand (*Juncus patens*)

Photo 3.

View west along data transect from data points P-4 to P-1

Appendix G. Archaeological Reconnaissance of the County Service Area 11 Water Supply Project

ARCHAEOLOGICAL RECONNAISSANCE OF THE COUNTY SERVICE AREA 11 WATER SUPPLY PROJECT, PESCADERO, SAM MATEO COUNTY, CALIFORNIA

by

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May 2015

Report Completed For

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INTRODUCTION AND PROJECT SUMMARY

In January 2015, Holman & Associates Archaeological Consultants (H&A) completed a pedestrian general reconnaissance of the approximately two acre "County Service Area 11 Project" (CSA11 Project/Project Area), also known as the "Pescadero Water Supply and Sustainability Project" off Bean Hollow Road, outside to the west of the unincorporated town of Pescadero, in the south coast region of San Mateo County. This research was authorized by and conducted for Denise Duffy & Associates of Monterey, California, for the San Mateo County Department of Public Works. The Project Area is the site of an existing water supply system for the town of Pescadero and environs, consisting of an existing water tank, maintenance and chlorine buildings; wells supplying the water for the system are about one-fifth mile/275 m away to the southwest, outside the Project Area. Because the proposed expanded water supply project involves earth-moving and construction impacts that would or could adversely affect any cultural resources on the Project Area, this cultural resources reconnaissance and evaluation was required by San Mateo County under provisions of the California Environmental Quality Act (CEQA) and under relevant local codes, as well as by the California Department of Water Resources (DWR) under June 2014 Grant Program Guidelines for funding under California Proposition 84 (DWR 2014).

The archaeological reconnaissance and initial evaluation of the CSA 11 Project Area entailed four steps. A search of relevant records and maps maintained by the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University was completed to determine whether the property and/or areas nearby had been previously surveyed or contained previously recorded cultural resources. A pedestrian surface reconnaissance was conducting covering the Project Area and immediate environs. As per DWR Guidelines, consultation was conducted with California Native American Tribes by obtaining a Sacred Lands File search and list of currently recognized Native American representatives for San Mateo County, who were contacted by letter. This report and the recommendations below constitute the fourth step of initial archaeological resources research for this Project Area.

The historical resources records search showed a portion at the southeast corner of the Project Area had been previously surveyed, during which no archaeological resources were found, nor were any recorded field surveys or recorded archaeological or other historical resources found within 800 meters/½ mile of the Project Area. No responses were received from Native American representatives from the solicitation for consultation after 90 days. The general pedestrian reconnaissance found the entire Project impact zone to be highly disturbed as the result of quarrying on and around the location. No evidence of archaeological resources was found in the Project Area. The Project location was probably of low archaeological sensitivity prior to the quarrying due to steep slopes and lack of resources on the hills. No additional archaeological research or mitigation measures are recommended for this proposed project, subject to the proviso regarding surprise discoveries at the end of this report.

Map 1: CSA 11/Pescadero Water Supply Project Location.
(USGS "San Gregorio" [north] and "Pigeon Point" [south] 7.5 minute topographic quadrangles, 1997)

THE PROJECT AND PROJECT AREA

Location and Legal Description

The CSA 11 Project Area is located near the end of an access road/driveway running off Bean Hollow Road to the southwest, about 530 m/⅓ mile from the intersection of Pescadero Creek Road with Bean Hollow Road, and about one mile/1.7 km from the unincorporated town of Pescadero to the east. The graveled access road/driveway previously led to the quarry and to a former airstrip on a northwest-trending ridge northwest of the Project Area. The Project Area is contained on the U.S. Geological Survey "Pigeon Point" 7.5 minute topographic quadrangle, bordering the "San Gregorio" 7.5 minute quad to the north, portions of which are reproduced here as Map 1. The Project vicinity is not surveyed into the township-and-range survey system, being in the Mexican-era *Rancho Butano* land grant. The Project Area property belongs to San Mateo County.

Project Rationale and Impacts

The goal of the CSA 11 Pescadero Water Supply and Sustainability Project is expressed in the name; the project will improve the reliability and sustainability of the County-provided potable water supply to the surrounding Pescadero area, providing additional storage capacity and improved security. According to 75% plans provided by San Mateo County, the existing tank and buildings will remain and a new tank of the same size will be built just northwest of the existing tank and chlorine building, connected to the chlorine building and maintenance building by new trenched-in pipelines, and a new well is planned to the southeast between the chlorine and maintenance building buildings, which will be fenced-in. Grading at both locations will be minimal as the surface is already nearly level and flat and no topsoil is present to be removed. Grading will extend slightly into the adjacent foot of the small ridge to the west of the new tank location, where disturbed topsoil but mostly gravel is present. The plans also show new fencing to be installed around the two existing supply wells on the ridge south of the existing tank and buildings; that installation should require no grading.

Biophysical Description

The vicinity of the Project Area is dominated by a former quarry, the flat floor and main cut into the hillside of which is about 250 feet/78 m northeast of the existing water supply facility. The Project Area is mostly a small artificial flat between a higher hill to the east and the ridge to the west and northwest; the 200 foot elevation contour runs through the Project Area. The artificial flat appears to have been built into a small natural swale between higher areas to the west and east during the time the quarry was in operation and probably served as the quarry staging area. The western side of the impacts zone rises slightly on what appears to be an artificial bench carved into the east slope of the gently rising ridge, with the natural hillside above. The surrounding terrain is gently to steeply hilly, with Butano Creek to the east, Pescadero Marsh to the north, and the Pacific Ocean to the west about 1.8 km/1.2 miles. A very small seasonal drainage runs through the Project Area from north to south, above and west of the existing tank. This current watercourse appears to have been established west of a natural one by filling of the swale with quarried materials. It is dammed to create a small agricultural pond just to the south; otherwise the nearest perennial stream is Butano Creek about a quarter-mile/400 m to the east, but the Project property itself and the westerly slopes appear to have near-surface water, and small seeps are visible along the westerly ridge. See the discussion below about the period of quarry operations.

The artificial flat where the current water supply facilities sit appears to have no native topsoil present, being built of material from the adjacent quarry. The surface around the existing tank and maintenance building is gritty and gravelly but does support plants. The subsoil is exposed in places and contains rounded to angular pebbles and cobbles, mostly indurated sandstones and metamorphics. Around the existing tank

and building the surface is built of imported gravel. At the westerly side, thin native topsoil is a light brown sandy clayey silt also containing rounded native pebbles. Immediately around the existing facility annual grasses of Eurasian origins cover the surface, with taller stands of Jubata ("pampas") grass and fennel in the generally cleared area. The apparent bench, perhaps an old roadcut, to the west of the Project supports more native coastal prairie-scrub vegetation, including Coyote Bush, Wax Myrtle, Coffeeberry, willows, plantain, wild blackberry vines, and Jubata, fennel, and annual grasses. Despite evident disturbance, vegetation covers the surface of the majority of the Project impact zones.

Ethnographic Setting

The Native Americans who owned the coast from the Golden Gate to the Carmel area and inland to about the crest of the Diablo Range when the Spanish arrived in 1769 are now most commonly known as "Ohlones," a name from an ocean coast village or tribe near the current Project Area. Archaeological evidence indicates the ancestral Ohlones entered the San Francisco Bay region–depending on location–somewhere around 500 C.E. (Moratto 1984), probably from the lower Sacramento Valley, and the Monterey Bay area somewhat later, displacing earlier populations. Anthropologists labeled them "Costanoans," from the Spanish *Costanos* (coast-dwellers), also a linguistic term describing groups speaking related languages in the Penutian Stock. Some Ohlone descendants still prefer the term "Costanoan," while others prefer "Ohlone" or identify with more specific tribes such as Chochenyo, Amah, Mutsun, or Rumsen/Rumsien.

The best current information indicates at the Spanish invasion the *Oljon* tribe of Ohlones/Costanoans held the general Project Area vicinity. The *Oljon* group was

> A tribe on the lower drainages of San Gregorio Creek and Pescadero Creek on the Pacific Coast west of the Santa Clara Valley. ... The term Ohlone, an alternative for Costanoan, may have derived from this tribe's name. Mission San Francisco descendent Pedro Alcantara reported in 1850 that the tribes of that mission were five in number, "the *Ah-was-tes, Ol-hones* in Spanish, Costanos or Indians of the Coast, *Al-tah-mos, Ro-mo-nans,* and *Tu-lo-mos* (Schoolcraft 1860:2:506) [Milliken 1995:249].

Marriage ties indicate the *Oljon* seem to have been a small group of several bands located between larger tribes to the north and south–their location unable to support a larger population or to supply internal marriage partners–and affiliated with groups along the coast to the north and south and on the east side of the Peninsula. Clearly the Project Area vicinity was permanently if sparsely occupied, probably with both small permanent and seasonally occupied villages, and likely had been for millennia. The Project region certainly was used aboriginally for habitation and specific locales for specific tasks, such as gathering and processing food resources, and the coastal headlands, marshes and tidal zones, and permanent and seasonal streams in the vicinity contain archaeological sites, but population was probably always small.

Natural resources in their home areas provided for nearly all the needs of the aboriginal Ohlone. They were "hunters and gatherers," which may connote a transient, unstable and "primitive" life, materially poor, constantly fending off starvation; it should not. While undoubtedly recurrent lack of resources and cultural strife did not make life perpetually easy, in some ways the people of Central California, without agriculture, had a lifestyle similar to contemporary agricultural peoples elsewhere. The Ohlone had adapted to and managed their generally abundant local environment so well that some places were continuously occupied for literally thousands of years. Compared to modern standards, population density was always low, but the Ohlone area, especially around Monterey and San Francisco Bays, was one of the most densely lived-in areas of prehistoric California for centuries. The Ohlones had perfected living in and managing myriad differing environments, some rich enough for large permanent villages of "collectors" to exist, others less abundant and promoting a more mobile "forager" way of life. Littoral and riparian environments were obviously more

productive and therefore most sought, most intensively utilized and occupied, and most jealously defined and guarded. Uplands and redwood zones were less productive and less intensively used and occupied than the ocean and bay coasts and riparian corridors. As throughout Central California, the acorn was a dietary staple, but a huge number of floral and faunal resources were utilized. Like other native Californians, the Ohlone managed their environment to improve it for their use; for example, by burning grass and brush lands annually to improve forage for deer and rabbits, keep the land open and safer from predators and their neighbors, and improve productivity of many resources they used.

The basic Ohlone social unit was the tribe, a small independent group of usually related families occupying a specific territory and speaking the same dialect. A wide diversity of languages had evolved in Central California, evidence of centuries of in-place divergence of small social groups. Early linguists recorded some groups of only 50-100 people speaking distinct languages sometimes but not generally unintelligible to their neighbors. Inter-tribe relationships were socially and economically necessary, however, to supply both marriage partners and goods and services not locally available. Trade and marriage patterns were usually but not always dictated by proximity; traditional enemies were usually also defined by proximity. Regional festivals and religious dances brought groups together during periods of suspended hostilities

Traditional trade patterns had operated for thousands of years. Trade supplied the Ohlone with goods from sources sometimes several hundred kilometers distant and allowed export of goods unique to their region. Ohlone groups traded most with each other, but also exchanged regularly with groups in every direction, such as the Miwok, Yokuts, and the Pomo. Of particular interest archaeologically are imported obsidian and exported marine shell beads and ornaments. Obsidian artifacts can be traced to specific sources, as well as being datable by technical methods (“hydration”). Obsidian was obtained from the North Coast Ranges and Sierran sources in patterns that changed through time. By 1769, some Ohlone had been trading for or buying finished obsidian arrowheads of specific forms, made by North Coast tribes, for hundreds of years.

Shell beads and ornaments, a major export from the Ohlone regions, were made primarily from the Purple Olive snail (*Olivella*), abalone (*Haliotis*), and later Washington Clam (*Saxidomus*), all ocean coast species. Shell beads and ornaments were produced in definable types through the millennia, making chronological typing of these common artifacts a key to the age and relative cultural position of archaeological complexes. These beads have been found in prehistoric sites throughout California and many kilometers east, into the Great Basin, showing that prehistoric coastal peoples were tied into an "international" trade system. At the Spanish invasion, some Central Californians had developed a system of exchange currency or "money" based on clam shell disk beads; the extent to which the Ohlone related to that system is unknown.

The small tribes were both independent and interdependent. Trade with neighbors in goods, and wives, is strongly attested in both the archaeological record and ethnographic accounts. These relationships often moved both goods–particularly obsidian and shell beads–and sometimes individuals long distances, though proximity was always the key factor in intensity of interaction (Milliken 1995). As elsewhere, control of territory and resources was jealously guarded. Such interaction also included a significant component of interpersonal and intergroup violence, from individual disputes to clan feuds to a level reasonably described as warfare (with the goal of displacing neighbors and claiming desirable resources). The most typical weapons were the short thrusting spear and the bow and arrow, and archaeological evidence of use of both on humans is not lacking. The Spanish also reported ongoing multigenerational feuds or warfare in Ohlone territory. Such violence had social approval and prestige, as exemplified by the practice of dismembering dead foes, taking and displaying trophy heads, and composing “songs of insult or vengeance” toward enemies (Kroeber 1925:468-469). Postmortem dismemberment is documented at numerous Ohlone sites (Wiberg

1993, 2002, 2010; Grady et al. 2001; Hylkema 2002; Schwitalla 2013). The too-common stereotype of Central California natives as altogether peaceable and passive in the face of threats–from their neighbors or the Spanish–is contradicted by both historical and archaeological evidence. As everywhere, the contest for resources and territory, as well as individual disputes, often led to violent aggression in and between the Ohlone tribes, and between Native Americans and European invaders.

Absolute and relative dating of archaeological sites, the linguistic diversity, and demonstrably ancient trade patterns all indicate the Ohlone and other Central California groups had reached a state of demographic and social stability unimaginable to modern city-dwellers–a state in which the same family groups occupied the same location continuously for hundreds or even thousands of years with few or very slow changes in population size or profile. This long term stability is reflected in the homogeneity of archaeological sites spanning wide geographic and temporal ranges.

HISTORICAL RESOURCES RECORDS SEARCH RESULTS

An historical resources records search for the CSA 11 Water Supply Project was conducted by Holman & Associates at the Northwest Information Center (NWIC) of the CHRIS on 23 December 2014. The records search radius was 800 m/½ mile around the Project location. The records search found one recorded archaeological survey within the search radius, a previous study for the "Pescadero Water Supply Project" in 2003 (Pulcheon 2003), which covered the southeast corner of the current rectangular Project impact zone but as mapped not the location of the proposed new tank. The existing water storage tank, maintenance building, chlorine building, and "public works staging area" were already present in 2003, and the report notes the "... saddle below a ridgeline ... has been modified by the County to accommodate ..." those facilities and "This modification consists of grading and filling to create level, usable terrain for County equipment and materials storage. Currently 80 to 90% of the study area has been modified in this way, with the remaining relatively unmodified portion located around a small hillside seep near the western edge" (Pulcheon 2003:1). This study found no historical resources and the records search found no historical resources were recorded within the search radius. The nearest prehistoric sites are just over 800 m/½ mile away to the southeast on the east bank of Butano Creek. No historical resources are recorded within or near the search radius either, though numerous resources are recorded in the town of Pescadero and elsewhere in the vicinity.

The historical resources records search included searching for recorded resources in the California Inventory of Historical Resources (1976), the Office of Historic Preservation Historic Properties Directory (April 2012), and a check of historic maps at the NWIC, which turned up the 1862 plat map of *Rancho Butano* noted below. In-house historical resources and maps were also examined.

The NWIC File Number for the Project is 14-0817. A copy of this report will be filed for permanent archiving at the NWIC as required by the state.

Although a portion of the Project Area has surveyed for archaeological resources and neither prehistoric nor historical resources are recorded nearby, the records search also provided a copy of the official plat map of *Rancho Butano*, dated to 1862 (U.S. Surveyor General 1862). That map simply outlines and notes landmarks for the land grant, but does not show any structures or features (very few rancho plat maps do). Later historical maps of the vicinity are more detailed but do not indicate any development or use of the Project Area or vicinity until well into the twentieth century.

The earliest "Official Map of the County of San Mateo" from 1868 (Eastman 1868) does not extend south of San Gregorio to the current County line because it was in that same year that the State transferred a large section of Santa Cruz County into San Mateo County, after a campaign by businesses in Pescadero

for annexation into the more developed northerly county (Hynding 1982:1420). The 1877 Official Map shows nothing in the vicinity of the Project (Cloud 1877) but the 1894 Official Map shows the property now belonging to Loren Coburn, a road to and bridge across upper Butano Creek near the area (but no road west of the creek), and the projected route of the then-proposed Ocean Shore Railroad near the area (that portion of the railroad was never built) (Bromfield 1894). The oldest topographic map covering the area, the 1902 Santa Cruz 15 minute quadrangle, shows that same road now crossing west of Butano Creek and meeting Bean Hollow Road, which is in the current alignment, and a road up onto the bluff and a structure in the approximate location of the later quarry. The 1909 Official Map shows that same road and Bean Hollow Road, with another labeled "Pebble Beach Road" running northward and around the northern end of the ridgeline next to the Project Area (Neuman 1909), but no structures. The 1927 Official Map has the entire area owned by Peninsula Farms Co., and subdivided into large parcels, and a small section marked "Reserved" that could be the future quarry location (Kneese 1927). The 1942 Año Nuevo topographic map shows the current alignment of Bean Hollow Road, but the only road into the Project vicinity comes in from the south rather than the north like the current access road, right to the quarry location but no quarry is indicated. Several structures and roads are found farther west on the bluff, and what appears to be an electric line from Pescadero Creek Road indicates the area had electricity by then. The 1948 Año Nuevo 15 minute topographic map shows the same features but lacks the dirt road into the quarry area from the south and there are no other features in or near the Project Area. The final Official County Map (Grant 1950) does not show any roads, structures or features in the Project Area but does still show the "Reserved" area.

The first map to show the quarry location is the Pigeon Point 1955 topographic quadrangle, which shows the current access road/driveway and also shows the pond south of the Project Area, all in the color designating newly mapped features that did not appear on previous editions. However, the 1942, 1948, and 1950 maps notwithstanding, a 1943 aerial photo furnished by San Mateo County DPW, found at UC Santa Cruz, does show a dirt road more-or-less along the current access road alignment, skirting the Project Area to the east, with a spur to the east into what appears to be perhaps a spoils pile from quarrying activity. That probable spoils area location is also shown in a 1963 aerial, with the quarry clearly in operation, with operations extending over the Project Area, and the southerly pond also in place. It appears the quarry was in use from some time in the mid-1940s to perhaps 2000, and it still is used for staging and materials storage outside the Project Area.

NATIVE AMERICAN CONSULTATION

As per direction in Appendix D of the 2014 "Guidelines for Integrated Regional Water Management Implementation Grant Program Funded by Proposition 84" (DWR 2014), Native American tribes and representatives recognized by California's Native American Heritage Commission (NAHC) were solicited for information and comments on the CSA 11 Water Supply Project. The NAHC was contacted by letter dated 08 January 2015, provided with the topographic quadrangle marked with the Project Area (Map 1), and requested to conduct a search of the Sacred Lands files and provide the current list of Ohlone/Costanoan Native American Contacts for San Mateo County. The NAHC responded in a letter dated February 13th that "A record search of the sacred land file has failed to indicated the presence of Native American cultural resources in the immediate project area." A list of nine Native American representative individuals and groups affiliated with the Ohlone/Costanoan Native Americans was provided. These representatives were contacted by letter sent via First Class Certificate Mail on 19 February 2015, providing the topographic map with the Project Area and a succinct project description, noting that no prehistoric sites were recorded nor found during field survey in the Project impacts zone. As detailed in the DWR "Guidelines" Appendix D to "Allow tribes 90 days to reply to the notification," H&A for the County waited three months from the day all letters would have been received (27 February) for possible responses, until 28 May 2015. Consultation documents are provided in Appendix A.

The following Native American contacts were sent letters:

Rosemary Cambra, Chairperson, Muwekma Ohlone Tribe of the San Francisco Bay Area, Milpitas, CA;
Jakki Kehl, Ohlone/Costanoan, Patterson, CA;
Andrew Galvan, The Ohlone Indian Tribe, Inc., Ohlone/Costanoan, Bay Miwok, Plains Miwok, Patwin, Fremont, CA;
Ramona Garibay, Representative of the Trina Marine Ruano Family, Ohlone/Costanoan, Bay Miwok, Plains Miwok, Patwin, Union City, CA;
Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan, Hollister, CA;
Irenne Zwierlein, Chairperson, Amah/Mutsun Tribal Band, Woodside, CA;
Michelle Zimmer, Amah/Mutsun Tribal Band, Woodside, CA;
Tony Cerda, Chairperson, Coastanoan Rumsen Carmel Tribe, Pomona, CA;
Linda G. Yamane, Ohlone/Costanoan, Seaside, CA.

As of the end of 28 May 2015, no responses have been received nor have any letters been returned. Examples of the consultation letters and maps are provided in Appendix A.

RECONNAISSANCE METHODS

On 07 January 2015 a pedestrian survey was conducted on all accessible areas of the small Project Area by the author, accompanied by Ms. Carole Foster of San Mateo County Department of Public Works' Watershed Protection Services, who further described the work to be done and the extent of impacts. A "general surface reconnaissance" was completed of the property (cf. King, Moratto, and Leonard 1973), carefully inspecting the Project impact zone for cultural materials, topographic indicators, and vegetation and soil characteristics that might indicate surface or subsurface prehistoric cultural materials or historical resources.

Surface visibility in the Project Area varied from fair in small spots to nil, but was generally poor due to thick vegetation and duff and most of the previously developed impact zone is covered by fill and gravel. The westerly slope was both more heavily vegetated and provided a few more opportunities to view mineral soil in disturbed/eroded areas; a few gopher burrow piles were also observed. No native soil at all was visible within the developed zone of the Project Area.

RECONNAISSANCE RESULTS

No evidence of prehistoric cultural use of the Project Area was found during the surface survey, nor were any historical resources detected. Poor visibility hampered the survey, but the location, even before development of and disturbance caused by the quarry operations and subsequent County uses, would be expected to be of low archaeological sensitivity. That extensive disturbance would have removed or at least deeply covered any prehistoric cultural materials present around the existing facilities. The westerly hillside would have been steeper, lacking the slight bench now present, and not amenable to prehistoric cultural use.

No evidence of archaeological resources of any kind was found in the CSA 11 Pescadero Water Supply Project Area. All areas within the Project showed abundant evidence of previous disturbance, including grading, filling, removal of vegetation and topsoil, and being mostly covered by imported materials and numerous other sorts of materials and items. The quarrying activity dates back far enough to be considered for historical resource status, but the Project Area lacks both the integrity of location, design, setting, materials, workmanship, feeling, and association required and fails to meet any of the other criteria for inclusion in the California Register of Historical Resources. The CRHR criteria are provided in Public

Resources Code §5024.1(c)(1-4), where a historical resource may be included in the CRHR if, while possessing the qualities of "integrity" as per National Register of Historic Places criteria:

> c) a resource may be listed as an historical resource in the California Register if it meets any of the following National Register of Historic Places criteria:
> (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, or represents the work of an important creative individual, or possesses high artistic values.
> (4) Has yielded, or may be likely to yield, information important in prehistory or history.

Water supply facilities in the Project Area do not meet any of these criteria, in that the impacts zone is not associated with significant events in history or heritage; nothing in the area is associated with important persons in our past; nothing in the area has distinctive characteristics or high artistic values, and; nothing in the Project Area has yielded or is likely to yield important information for history or prehistory.

CONCLUSION AND RECOMMENDATION

The Community Service Area 11/Pescadero Water Supply and Sustainability Project Area contains no evidence of prehistoric archaeological resources, either previously recorded or found during survey. Recent historic use of the Project Area vicinity is quite evident, including the current water supply use and the previous quarrying use, which are not qualifying historical resources. No structures or features qualifying as historical archaeological or other resources are present in the Project Area. No additional historical resource research or evaluation is recommended prior to the Water Supply Project going forward.

Recommendation

Although no archaeological or other historical resources were found on the Community Service Area 11/Pescadero Water Supply and Sustainability Project Area, it is possible that subsurface deposits may exist or that evidence of such resources has been obscured by more recent natural or cultural factors, primarily the previous quarrying in the Project Area. Archaeological and historic resources are protected from unauthorized disturbance by State law, and supervisory and construction personnel should therefore be made aware of the possibility, scant though it may be, of encountering archaeological materials in this zone.

In this area, the most common and recognizable evidence of prehistoric archaeological resources are areas with darker fine-grained soil (midden), carbon/charcoal and burnt rocks, often containing bones and ocean shellfish such as clams and mussels, usually in fragments; chert, obsidian, basalt, and other stone flakes left from manufacturing stone tools, or the tools themselves (mortars, pestles, arrowheads and spear points), and human burials, often as dislocated bones. Historic materials older than 45 years–bottles, artifacts, features, structural remains, etc.–may also have scientific and cultural significance and should be more readily identified. If during the proposed construction project any such evidence is uncovered or encountered, all excavations within 10 meters/30 feet should be halted by San Mateo County Department of Public Works/Watershed Protection Services long enough to call in a qualified archaeologist to assess the situation and propose appropriate measures.

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APPENDIX A:

NATIVE AMERICAN CONSULTATION RECORD AND DOCUMENTS

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS

COUNTY SERVICE AREA 11/ PESCADERO WATER SUPPLY PROJECT

holman & ASSOCIATES
Archaeological Consultants
"SINCE THE BEGINNING"
3615 FOLSOM ST. SAN FRANCISCO, CALIFORNIA 94110 415/550-7286
FAX: 415/282-6239

FACSIMILE TRANSMISSION
COVER SHEET

DATE: 08 January 2015

ADDRESSEE: Debbie Pilas-Treadway
Native American Heritage Commission
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691

FAX #: 916-373-5471

OF PAGES (this page not included): two

COMMENTS:

Dear Debbie,

Please find below this cover a Sacred Lands and Native American Consultants list request for a project in San Mateo County.

I am requesting that the Commission fax the results and list directly back to me. My fax number is 650-726-6269. This is both a voice and fax line so there is an outgoing voice message. When the outgoing message comes on, the fax can be sent and will go through. Please call my home office (650-726-6269) or email me at MRCCRM@comcast.net if you have trouble with the fax going through.

Many thanks.

Cordially yours,

Matthew R. Clark, RPA
Senior Associate

holman & ASSOCIATES
Archaeological Consultants
"SINCE THE BEGINNING"
3615 FOLSOM ST. SAN FRANCISCO, CALIFORNIA 94110 415/550-7286

Debbie Pilas-Treadway
Native American Heritage Commission
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691

08 January 2015

Dear Ms. Pilas-Treadway,

Holman & Associates is conducting consultation with Native Americans for the "CSA II Water Supply Project, Pescadero," in unincorporated coastal San Mateo County. The Project is located approximately one mile southwest of the town of Pescadero off Bean Hollow Road, as shown on the enclosed "Pigeon Point" quad topographic map, and includes about one acre. The Project vicinity is not surveyed into the township-and-range system, being in the northern end of the *Rancho Butano* land grant. An archaeological records search has shown no Native American sites recorded in or near the Project Area, but there are two midden sites recorded to the east within the half-mile search radius. Please review the Sacred Lands File for any Native American cultural resources that may be within or adjacent to the study area. Please notify us if you have any information or concerns.

We also request the **current list of Native American representatives, individuals, and groups** who are recognized representatives of the Costanoan/Ohlones who wish to be contacted regarding cultural resources in **San Mateo County.** To reach me, please call or fax to my home office number (650-726-6269) or use email to MRCCRM@comcast.net, not the main office number (above), unless you can't reach me or would like to talk to Miley about the project.

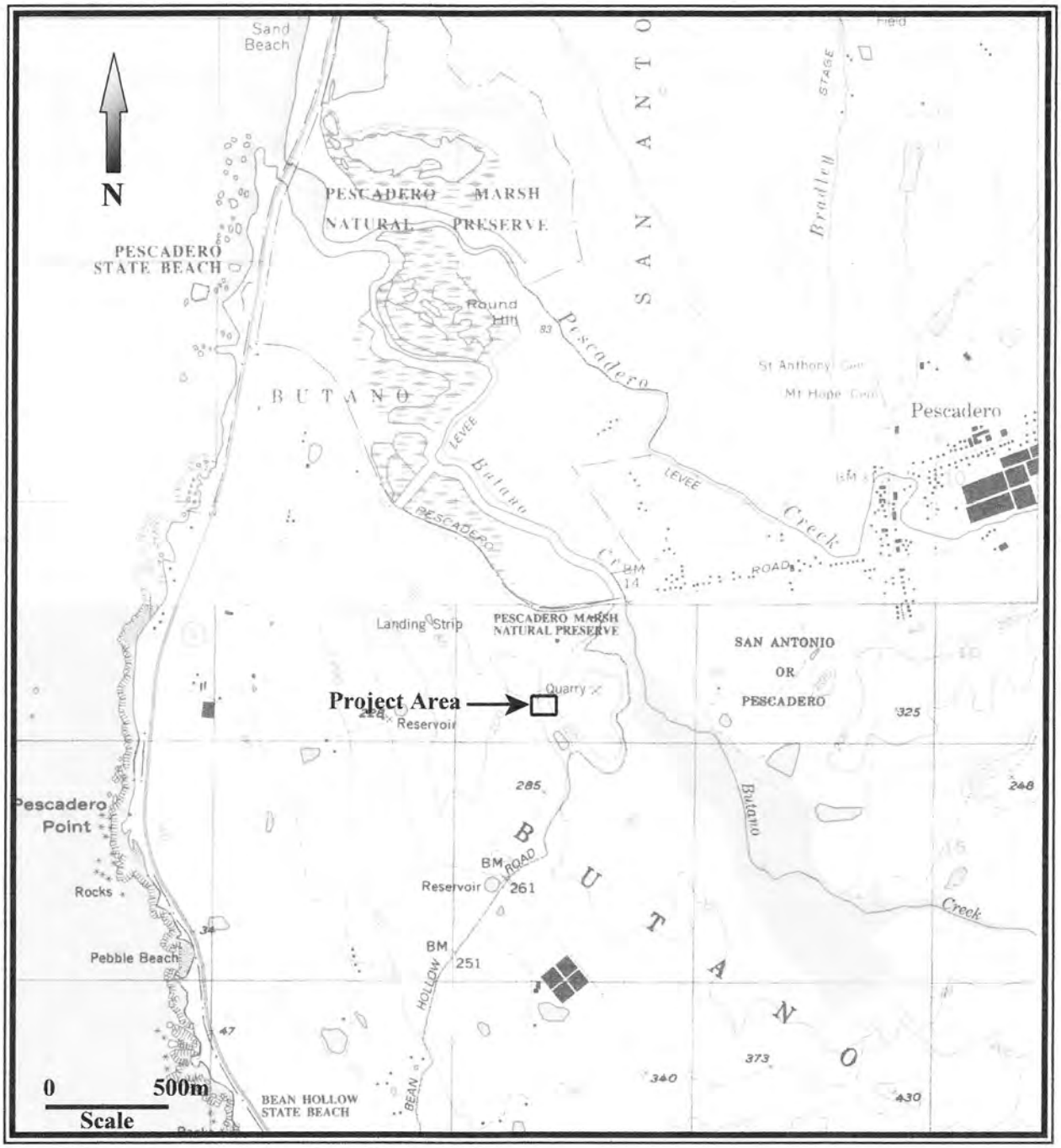
PLEASE FAX RESULTS TO: 650-726-6269. This is a **voice/fax** line, so just send the fax when the outgoing message comes on and it will go through.

We look forward to hearing from you. Thank you.

Cordially yours,

Matthew R. Clark, RPA
Senior Associate

enc: Pigeon Point/San Gregorio 7.5 min. topo w/ Project Area



Map 1: Pescadero Water Supply Project Location.
(USGS "San Gregorio" [north] and "Pigeon Point" [south] 7.5 minute topographic quadrangles, 1997)

STATE OF CALIFORNIA — Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd.
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471

February 13, 2015

Matthew R. Clark
HOLMAN & ASSOCIATES
3615 Folsom Street
San Francisco, CA 94110

Email – mrccrm@comcast.net

2 Pages

CSA II Water Supply project, San Mateo County

Mr. Clark;

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3713.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
San Mateo County
February 11, 2015

Jakki Kehl
720 North 2nd Street
Patterson , CA 95363
jakkikehl@gmail.com
510-701-3975
Ohlone/Costanoan

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

Linda G. Yamane
1585 Mira Mar Ave
Seaside , CA 93955
rumsien123@yahoo.com
(831) 394-5915
Ohlone/Costanaon

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
P.O. Box 360791
Milpitas , CA 95036
muwekma@muwekma.org
(408) 205-9714
(510) 581-5194
Ohlone / Costanoan

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road
Woodside , CA 94062
amahmutsuntribal@gmail.com
(650) 400-4806 Cell
(650) 332-1526 Fax
Ohlone/Costanoan

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3152
Fremont , CA 94539
chochenyo@AOL.com
(510) 882-0527 Cell
(510) 687-9393 Fax
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Amah MutsunTribal Band of Mission San Juan Bautista
Michelle Zimmer
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amahmutsuntribal@gmail.com
(650) 851-7747 Home
(650) 332-1526 Fax
Ohlone/Costanoan

Trina Marine Ruano Family
Ramona Garibay, Representative
30940 Watkins Street
Union City , CA 94587
soaprootmo@comcast.net
(510) 972-0645
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Coastanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
240 E. 1st Street
Pomona , CA 91766
rumsen@aol.com
(909) 524-8041 Cell
(909) 629-6081
Ohlone/Costanoan

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed CSA II Water Supply project, San Mateo County.

holman & ASSOCIATES
Archaeological Consultants
"SINCE THE BEGINNING"
3615 FOLSOM ST. SAN FRANCISCO, CALIFORNIA 94110 415/550-7286

Ms. Ann Marie Sayers, Chairperson
Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024

19 February 2015

Dear Ann Marie,

Holman & Associates is conducting consultation with Native Americans for the "CSA II Water Supply Project, Pescadero" for San Mateo County. The Project is located outside the unincorporated town of Pescadero in south County coast, and involves enlargement and improvements to existing wells, storage tanks, and pump facilities built on the site of a former quarry. The Project is on the USGS "Pigeon Point" 7.5 minute topographic quadrangle, a portion of which is supplied as Map 1. There are no prehistoric Native American archaeological sites in Project impact zones; the nearest is about 600 m away on the opposite side of Butano Creek. The Project Area has been surveyed twice for cultural resources with negative results. The entire Project impacts zone has been heavily disturbed and recontoured by previous use as a quarry and construction of the existing water supply facility.

We are contacting Ohlone representatives listed for San Mateo County by the NAHC. We invite your participation in the consultation process. The NAHC Sacred Lands files for properties of importance to Native Americans contain none in or near this Project. Please review the enclosed map to locate any Native American cultural resources not identified but known to you that may be affected by the Project. Please notify us if you have any information, recommendations, or concerns.

Your input and any recommendations you make will be given due consideration. We request that you address this matter and provide a written response within 90 days of receipt of this letter, which we will incorporate into our documentation.

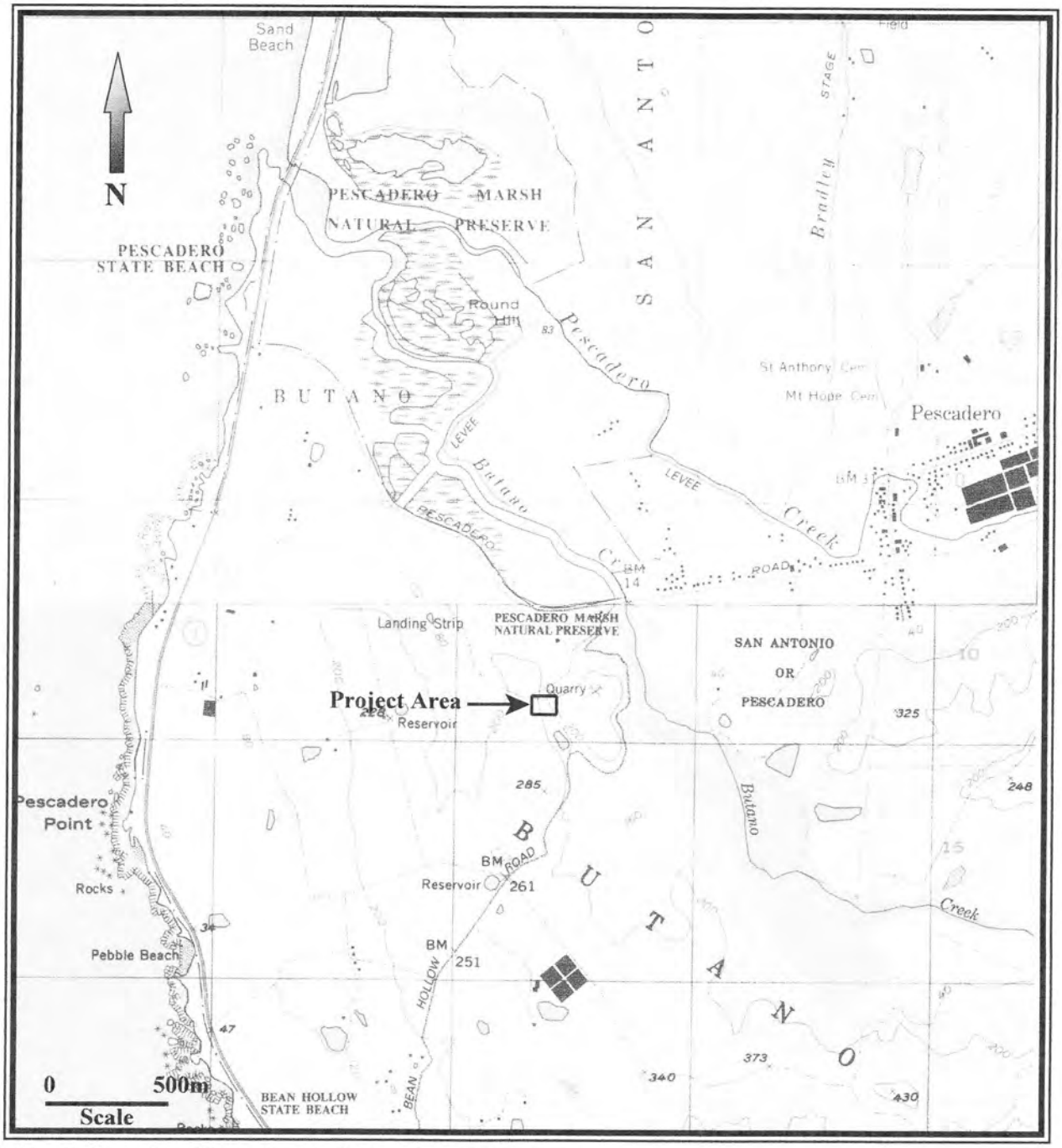
To reach us, please call or fax to my home office number (650-726-6269) or use my email (mrccrm@comcast.net), not the main office number, unless you can't reach me or would like to talk to Miley about the project. If you use regular mail, please send your written response to the address above.

We look forward to hearing from you.

Cordially yours,

Matthew R. Clark, RPA
Senior Associate

enc: Map: CSA II Water Supply Project Location (Pigeon Point quad)



Map 1: Pescadero Water Supply Project Location.
(USGS "San Gregorio" [north] and "Pigeon Point" [south] 7.5 minute topographic quadrangles, 1997)

County of San Mateo - Planning and Building Department

ATTACHMENT H

Technical Memorandum

HydroScience
Strategic Water Solutions

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From: Walter Sadler, P.E.
Reviewed By: Curtis Lam, P.E.
Subject: TM #1: Water Supply Reliability
Date: March 19, 2013

Purpose

San Mateo County, County Service Area No. 11 (CSA 11) is a public water system with a production well, standby well, welded steel storage tank, pump house, and distribution system that provides water for domestic use and fire flow to approximately 100 customers in Pescadero, CA. CSA 11's water source is an aquifer located in the Pigeon Point Formation approximately one mile west of unincorporated Pescadero area on the top of a northwest trending ridge adjacent to the Pacific Ocean. Due to the physical location and characteristics of both wells, the long-term sustainability of groundwater has been a concern for the County.

To comply with conditions of approval in the Coastal Development Permit No. 90-62 (CDP 90-62) issued in 1990 for construction of the existing well, the County of San Mateo commissioned an investigation of the groundwater supply by Todd Engineers in 2002, with the intent to identify issues associated with the source water and potential solutions to address those issues. This investigation of the groundwater basin was very thorough and presented a variety of recommendations, one of which was to drill a new and deeper well adjacent to the existing storage reservoir. The purpose of this Technical Memorandum (TM) is to review the existing water supply conditions and provide a recommendation for water supply improvements.

History

The unincorporated area of Pescadero has a history of identifying and studying alternative water supplies for a community water system. One of the first studies to evaluate the use of both groundwater and surface water as a reliable source of supply was the *Community Water Plan for the Town of Pescadero, County of San Mateo* (Koretsky King Associates, September 1976). In this study, aquifers in bedrock and in the alluvium of Pescadero Creek were evaluated. It was determined that the bedrock formations would be marginal in yield and adequate only for small domestic demands and therefore were unsuitable for development as a source of supply for a municipal system. Groundwater aquifers in the valley of Pescadero Creek are extensively pumped for both agriculture and domestic uses. While the hydraulic characteristics of these aquifers are excellent, it was determined that their low storage capacity due to their shallow nature presented problems with regard to developing a long-term and continuous supply. In addition, water quality was a major concern due to the potential for contamination by agricultural practices and septic tank leachate in the basin.

As a result, it was determined that groundwater from the main valley of Pescadero Creek was not a viable long-term source of supply. While other sources including several wells along Butano Creek were also evaluated, the overall conclusion was that groundwater within the creek alluvium was not sufficient to be considered a reliable source of supply for a municipal system.

Several alternatives for diversion and storage of surface water together with required reservoir capacities were considered for Pescadero Creek, Butano Creek, and Little Butano Creek. In addition, issues regarding water rights for existing diverters on the streams were also considered and cost estimates for a surface water project were developed. The project was not advanced to completion due to funding issues. Other studies evaluating the potential for development of groundwater as a source of supply were completed in the early 1980s. These studies are further described below.

The report, *The Water System for Pescadero Rural Service Center, County of San Mateo*, Kennedy/Jenks/Chilton, August 1986, evaluated four water supply alternatives. Alternative A was for surface water only, Alternative B was a conjunctive use project (groundwater and surface water), and Alternatives C and D were based on groundwater only. The report was inconclusive as to a recommendation, although Alternative D assumed that a groundwater supply could be identified that would only need to address iron and manganese removal. As a result of this assumption, Alternative D was by far the least cost alternative for the development of a municipal water supply. The projected monthly cost per residential user was approximately half that of the next less costly alternative.

In a subsequent amendment to the study in 1987, Alternative E was identified that assumed the source of supply to be a new well in the vicinity of an existing 6-inch well, which served as a test well and was named the Warheit Well. This well is located to the southwest of unincorporated Pescadero, in a geographical location that had not been previously considered, on top of a ridge, adjacent to the Pacific Ocean. Further analysis determined that this well had the required capacity and water quality. However, a second well was necessary for redundancy in the event of failure of the first well or pump. Cost estimates for this alternative were even lower per residential user than Alternative D of the original study.

In 1992, the second well (Well No. 1) was constructed approximately 300 feet north of the Warheit Well. The Warheit Well was also developed as a standby well in 1992 and is designated as Well No. 2. Completion details for the two wells are slightly different with Well No. 2 being screened at depths from 215 feet to 249 feet at which point the well is filled with bentonite and sand. Well No. 1 was completed to the depth of 260 feet and is screened at depths from 210 to 250 feet. Both wells were constructed with PVC casing and slotted screen with a gravel envelope. Following the completion of the 140,000 gallon steel storage reservoir, the system was put into operation as the sole source of supply for domestic and fire flow water for CSA 11.

Both Wells No. 1 and 2 are situated in the Pigeon Point formation. When Wells No. 1 and 2 were completed, this formation at this location was saturated from approximately 110 feet above Mean Sea Level (MSL) to well below MSL. Well depths in the Pigeon Point formation extend to well over 500 feet below MSL, suggesting that Wells No. 1 and 2 are not taking full advantage of the full saturated thickness (i.e. storage availability) of the formation.

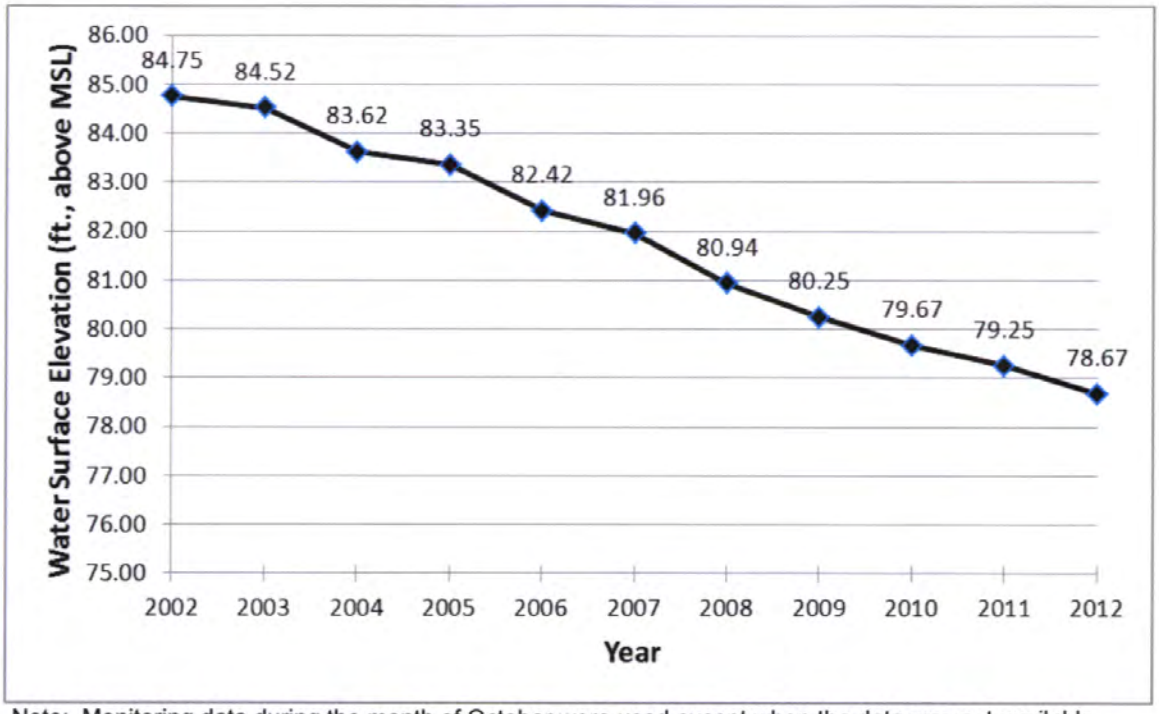
When initially constructed, the static water level in the wells was approximately 106 feet above MSL, whereas by 2002 the level had dropped to approximately 90 feet above MSL (a drop of 16 feet), with the top of the screens for Well No. 1 (the production well) and Well No. 2 (the standby well) at 66 and 70 feet above MSL, respectively. As a result, the County of San Mateo retained Todd Engineers to perform an assessment of the source water for the wells, which was summarized in the *Assessment of Source Water for the Pescadero Water System – CSA 11* ,Todd Engineers, March 2002. In the 2002 study by Todd Engineers (Todd Report), the Warheit Well is referred to as Well No. 1, and the production well is referred as Well No. 2. At some point after the

Todd Report was prepared, the well numbering system was reversed so that the production well became Well No. 1 and the Warheit or standby well became Well No. 2.

The Todd Report identified the rate of decline of the static water level and made a projection of the number of years each well will have before the pumping water level would encroach into the well screen area, thus causing cascading water. This study also presented some physical and operational changes for the water system, including monthly monitoring of static and pumping water levels. It was also recommended that a new production well be constructed at a depth of 100 feet below MSL so that storage in the aquifer can be more fully utilized and remain as the sole source of water supply for CSA 11.

In response to the Todd Report and to comply with Condition No. 4 of CDP 90-62, a monitoring program for water levels was established. Results of the water level monitoring from 2002 to 2012 are presented in Figure 1, below.

Figure 1. Static Water Levels in Well No. 1



Note: Monitoring data during the month of October were used except when the data was not available.

Current Conditions

The current static water surface elevation in Well No. 1 is projected to be approximately 78.5 feet above MSL. This projection is based on the assumption that the water level is continuing to fall at the same rate since the establishment of the monitoring program, as the level could not be measured at the time of this study. During a field visit on January 8, 2013, it was documented that the County's water level recording device had become stuck in the plastic pipe attached to the side of the metal drop pipe and its position precluded inserting another device in the plastic pipe to measure the water level. The projected level demonstrates a significant decline from the original static level of 106 feet above MSL in 1992. The downward trend in water surface elevations, as

shown in Figure 1, demonstrates that the static groundwater level will continue to decline in the long-term in response to pumping.

The significant issue regarding the water surface elevation during pumping is its proximity to the screens. If, during pumping, there is a significant difference between the water level in the well and that in the adjacent aquifer and the screens are exposed, air entrainment can occur. This difference in elevation can cause water to cascade into the well, which in turn will entrain air and cause the pump to cavitate and lose capacity. Ultimately, cavitation can destroy the pump, or the air entrainment will cause the pump to lose prime and cease pumping. While the Todd Report made note of the static water level and the height above the screens, the more significant issue now with the continuing decline in static water levels is the pumping water level.

Currently, Well No. 2 is operating as a standby well in conformance with Condition No. 2 of CDP 09-62. Therefore, to utilize this well, Operations Staff must notify the California Department of Public Health (CDPH) and perform the necessary water quality testing. It was noted that during an emergency condition on August 23, 2011, the pumping rate from Well No. 2 had declined significantly from its historical value of approximately 60 gpm to 6 gpm. This decrease in the production could be due to a variety of factors, such as decreased well efficiency which is reflected in a decrease in the specific capacity of the well (gpm/ft) during draw down. Thus, this increase in draw down will create a higher pumping head which will reduce the output of the pump. In addition, based on the decline in the static level, the pumping water level will be in the screened area of the well which can cause cascading water and thus entrained air and lower pumping rates. This lower pumping level may be responsible for the change in water quality (higher nitrate) as water is being drawn into the well from a different water bearing zone in the formation.

Well No. 1 has a reported specific capacity of approximately 5.4 gpm/ft of draw down, which based on current static water levels of approximately 78.5 feet above MSL and a pump rate of 100 gpm, would put the pumping water level at approximately 60 feet MSL or just below the top of the screens at 66 feet above MSL. If the efficiency of the well has changed over time due to formation or screen fouling, then the pumping water level would be lower and thus further into the well screen. There have been two occasions when the pump for this well needed to be replaced within the last few years, the first occurring in 2009 and the other in August 2011. During the August 2011 failure, CSA 11 had to resort to providing bottled water and other measures to address the short-term water supply needs until the pump could be replaced. Also, upon replacing the well pump in 2011, the pump was set at a deeper depth to address a concern regarding pumping water level and submergence of the well pump.

Water demand during 2012, was estimated to be approximately 24 acre-ft, which is consistent with the historical annual demand. Demand management measures such as low flush toilets, low flow shower heads, and high efficiency washers will reduce demand.

Conclusions

CSA 11 water system's Wells No. 1 and 2 were constructed in the portion of the Pigeon Point formation that is located above MSL. This formation is specific to this location and the saturated portion of the formation is at least 700 feet thick; however, only the portion of the formation that is above MSL is available to Wells No. 1 and 2. Current pumping exceeds the amount of recharge as evidenced by the declining water surface elevation. Continual declines in the water surface elevation will expose more of the screen during pumping and exacerbate the cascading water and associated cavitational impacts on the pumps in both wells It is estimated that at the current rate of water level decline, replacement of the pump will occur much more frequently until the water surface is at a level that it cannot be pumped from the well. It is currently estimated that this condition and thus failure of the well will occur within the next 5 to 7 years at the most.

To alleviate this situation, a new well with the screens located well below MSL will provide for adequate draw down of the pumping water level well above the new screen location. By design, the new well will have the screens located approximately 100 feet below MSL and well below the existing screens in Wells No. 1 and 2. Therefore, the screens in this new well would be well below the current pumping water level. In addition, locating the screens at this depth will allow the well to take advantage of more storage volume within the formation. Assuming the current level of water use and rate of decline of the water surface elevation, it is estimated that this new well will have a longevity of well in excess of 50 years. Reductions in demand due to water conservation together with potential for additional recharge by local stream flow will only lengthen the estimated life of the well.

To further improve the hydraulic performance of Well No. 1, it is proposed to locate the new well approximately 800 feet to the north of Well No. 1, thereby minimizing the mutual interference between the two wells. This greater separation, together with operating the wells in an alternating lead lag scenario, will provide more time for groundwater levels in the vicinity of Well No. 1 to recover.

Well No. 2 has limited capacity and cannot provide the average daily demands for the CSA 11 water system. Rehabilitation of Well No. 2 using standard chemical and physical methods to restore its hydraulic capacity would be difficult if not impossible as PVC casing can be easily damaged or destroyed by these techniques. Therefore, the CSA 11's water supply system does not have the redundancy requirements for supply, as required by CDPH for municipal systems, which at a minimum would require that each well be able to address the maximum daily demands of approximately 20,000 gallons.

In the Memorandum titled, *Pescadero Fire Flow Analysis*, Winzler & Kelly, May 2009, a deficiency in available water storage was identified. The current storage reservoir with a working capacity of 140,000 gallons does not have the capacity required to address fire flow requirements of 1,500 gpm for 2 hours, 180,000 gallons, plus operational and emergency demands. While the exact amount of emergency storage is Agency-specified, it should be well over 100% of Maximum Daily Demand as there is no backup power for the system. Therefore, adding additional storage in the amount of 140,000 gallons for a total of 280,000 gallons is reasonable as demonstrated by the recent failure of Well No. 1 in August 2011. CSA 11 did not have any redundancy of supply and therefore had to resort to bottled water for domestic consumption. In addition there was no fire flow storage.

Recommendations

Based on the review of historical and current information presented above, HydroScience recommends the following to address the long-term water supply reliability for the CSA 11 water system.

1. A new gravel packed well with a 12-inch diameter casing should be drilled adjacent to the existing storage reservoir to provide for maximum separation from the existing Well No. 1 and No. 2. This well should be completed to a depth of at least 100 feet below MSL, total depth approximately 300 feet, with the screens placed at the bottom of the well. This well would take advantage of the overlying storage in the formation and potential recharge from the local creeks in addition to the direct rainfall. Drilling the new well will provide CSA 11 with the redundancy required by CDP 90-62 and CDPH, and a more sustainable water supply.

2. The new well should be constructed to current well construction standards with a steel casing to facilitate any future rehabilitation efforts, a deeper sanitary seal and appropriate pump pedestal and site drainage facilities constructed to CDPH Standards. In addition, downhole pressure transducers should be installed to facilitate the collection of static and pumping water level data to provide for a better understanding of well performance.

3. It is recommended that this well have a steel casing of 12-inch diameter minimum to facilitate future downhole rehabilitation using mechanical and chemical methods, and pump installation with a sounding well attached to the pump column. This well should be designed for a capacity of approximately 100-150 gpm to allow for pumping during non-peak power usage times to reduce operational costs.

4. The pump control system should be configured to allow for the new well and Well No. 1 to alternate back and forth as the sources of supply for the storage reservoir, with Well No. 2 remaining as the emergency standby well. This new pump control system should allow for collection of the various system operational data such as water levels in the wells and reservoirs, flow rates, etc. and transmittal of that data or alarm settings to an appropriate operations center.

5. A second storage reservoir, to be constructed in proximity to the existing storage reservoir, is needed to provide for the additional storage requirements previously identified for operational requirements, fire flow and emergency demands. Both tanks should be hydraulically connected to enhance system operation.