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ORO LOMA WET WEATHER EQUALIZATION AND ECOTONE DEMONSTRATION PROJECT

Initial Study / Mitigated Negative Declaration

Prepared for
Oro Loma Sanitary District

November 2013

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CHAPTER 1
Project Description

1.1 Introduction

The Oro Loma Sanitary District (OLSD) proposes to implement the Oro Loma Wet Weather Equalization and Ecotone Demonstration Project (proposed project), which would include a multi-purpose wet-weather equalization facility that will include both a treatment wetland and an upland ecotone slope for polishing of treated wastewater. The facility will accommodate infrequent peak wet-weather flows, and provide an opportunity to pilot several adaptation strategies related to sea level rise, water quality protection, and infrastructure sustainability. The proposed project is located near the eastern shoreline of San Francisco Bay, approximately 4 miles south of the Oakland International Airport. The project site consists of a fifteen-acre parcel located at 2536 Grant Avenue in the community of San Lorenzo, unincorporated Alameda County, California, sited adjacent to and east of the existing OLSD wastewater treatment plant (WWTP), as shown in **Figure 1-1**. This document is an Initial Study/Mitigated Negative Declaration (IS/MND) that analyzes the potential environmental impacts from implementation of the proposed project.

This IS/MND is prepared in compliance with Public Resources Code Section 21000 et seq., California Environmental Quality Act (CEQA) of 1970 (as amended), and Title 14, Chapter 3 of the California Administrative Code. In accordance with the CEQA Guidelines, California Code of Regulations Title 14, Chapter 3, Section 15070, a Mitigated Negative Declaration shall be prepared if the following criteria are met:

- There is no substantial evidence that the project will have a significant effect; or
- Where there may be a potentially significant effect, revisions to the project would avoid or mitigate the effects to a point where clearly no significant effects would occur.

In accordance with Section 15073 of the CEQA Guidelines, this document is being circulated to local, state and federal agencies and to interested organizations and individuals who may wish to review and comment on the report. Written comments may be forwarded to:

Jason Warner
General Manager
Oro Loma Sanitary District
Engineering Department
2655 Grant Avenue
San Lorenzo, CA 94580-1838

SOURCE: ESRI and OLSD, 2013

Oro Loma Wet Weather Equalization, Treatment Wetland, and Ecotone Demonstration Project . D120042.01

Figure 1-1
Project Location Map

1.2 Project Background and Purpose

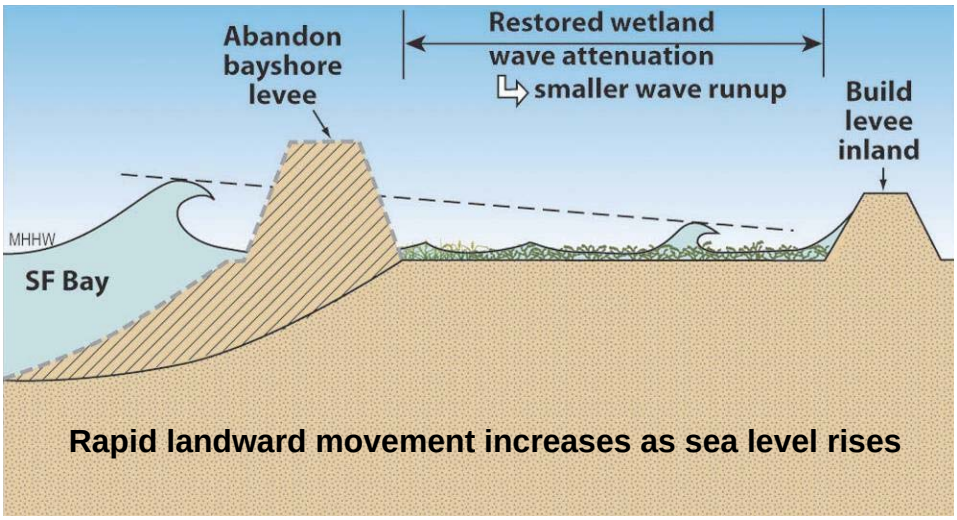
The concept behind the proposed project has progressed over the last several years, since development of a sea level rise vulnerability and adaptation study titled *Preliminary Study to the Effect of Sea Level Rise on the Resources of the Hayward Shoreline*, prepared for the Hayward Area Shoreline Planning Agency (HASPA) in March 2010. The study focused on a 4.3 mile stretch of shoreline between State Highway 92 and San Leandro Creek, identified vulnerable infrastructure mostly built on reclaimed tidal marshlands, and developed proposed adaptation strategies for the shoreline. In 2011, the Bay Conservation and Development Commission completed a study, *Living With a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline* (2011), which identified at least 22 wastewater treatment plants around San Francisco Bay that are vulnerable to the effects of sea level rise over the next century. There is a significant need to develop adaptation strategies for wastewater treatment plants in San Francisco Bay to respond to this challenge. Furthermore, this need can be combined to develop strategies that reduce our reliance on conventional coastal flood defense levees, and incorporate natural systems as part of a long term adaptation strategy.

The HASPA Study identified two key opportunities for long term adaptation to sea level rise. First, large amounts of treated wastewater pass through the shoreline in the EBDA pipeline from treatment plants in the south and east including the OLSD WWTP. Redirecting the output to local treatment marshes and disconnecting the EBDA pipeline would remove a major constraint on the Hayward shoreline and improve the resiliency of the EBDA system. Rather than "holding the line" to protect existing infrastructure that will become increasingly vulnerable in the future, disconnecting the EBDA pipeline would allow for realignment of the shoreline, removal of critical infrastructure from the hazard zone, and potential to take advantage of natural protection provided by marshes and mudflats to reduce the risk of flooding and erosion and allowing smaller coastal flood defense levees to be built. The input of fresh water could create more productive brackish marshes, with higher accretion rates, thereby better able to keep up with rising sea levels compared to saline tidal marshes (HASPA, 2010).

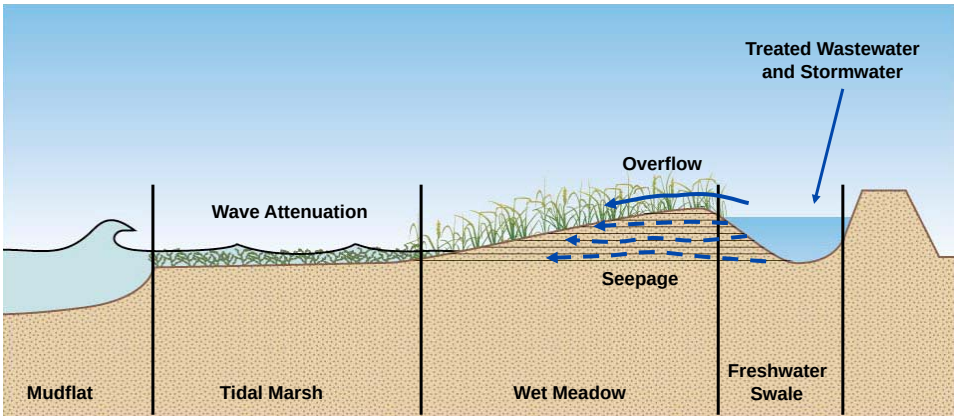
A second opportunity is the local availability of sediment trapped along the flood channels leading to the Bay. In the past this sediment would have entered the Bay and built up mudflats and marshes; this connection has now been broken. The sediment presently trapped could be recovered and hydraulically placed on the bayland edges. Artificial high marsh berms on the marsh edges could be actively managed to keep pace with sea level rise and erosion by periodically raising their crests with thin deposits of sediment.

Combining these opportunities into a high marsh berm with a brackish marsh behind existing tidal marshes would provide a shoreline that would gradually rise at similar rates to sea level and an adaptive and resilient shoreline. This would slow down the landward movement of salt marshes and loss of habitat yet maintain the wave attenuation functions of the marshes. This "horizontal levee" or "ecotone slope" mimics many of the historic bay processes and restores brackish marsh and other habitats which have been lost due to reclamation and dyking and draining of baylands, and is presented in **Figure 1-2.** This approach is anticipated to provide an

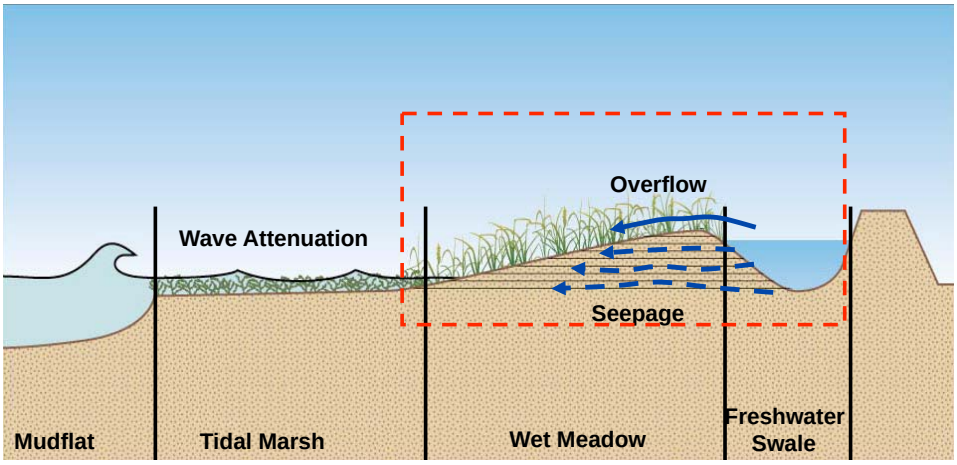
Adaptation Solution: Realign



A Progressive Solution: Ecotone Slope



Demonstration Projects- Goals



• to provide a wet-weather equalization facility

• to refine seepage slope design that is adapted for future SL rise through experiment (off-line)

SOURCE: PWA, 2010

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Figure 1-2

Natural System Based Approach to Sea Level Rise Adaptation

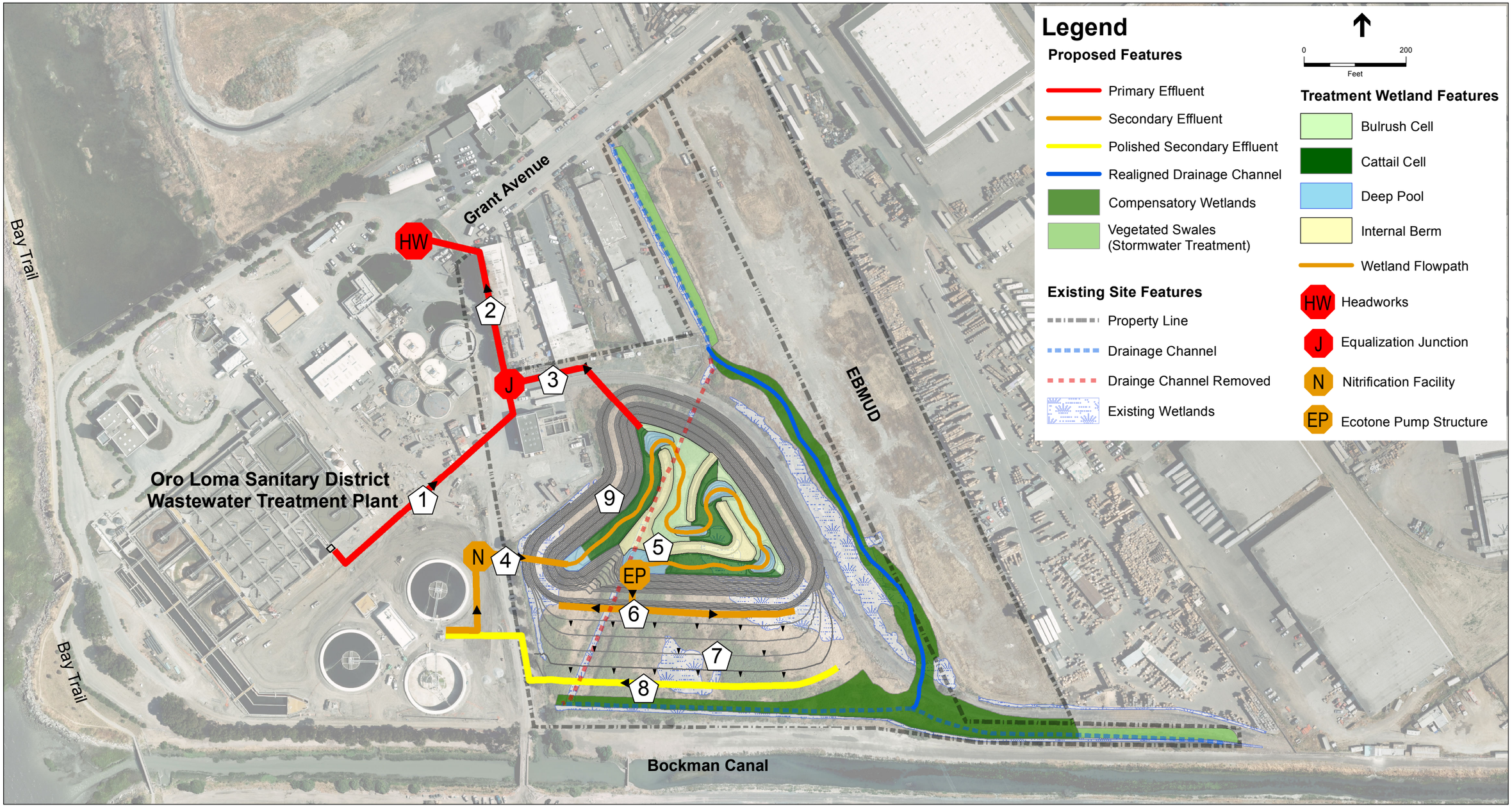
effective and environmentally friendly response to sea level rise by considering and responding to these vulnerability challenges: constraints of existing infrastructure, protecting property and habitat, adhering to protocols for trace pollutants and nutrient concentrations, and reducing overall energy demands.

The proposed project would serve as a demonstration project on the Hayward shoreline to explore the concept related to sea level rise adaptation, water quality protection, and infrastructure sustainability. The project is comprised of several major components proposed for a multitude of purposes, as follows.

- OLSD's WWTP has adequate capacity to treat peak wet weather flows. The purpose of the wet-weather equalization facility is to attenuate peak wastewater flows through the OLSD WWTP, reduce peak discharge rates to the EBDA treated wastewater forcemain and provide additional storage capacity to enhance existing high levels of regulatory compliance.
- The purpose of the treatment wetland and ecotone slope is to provide a demonstration project for OLSD and other wastewater treatment facilities adjacent to the San Francisco Bay to provide a resilient barrier to sea level rise, increase denitrification treatment and lower nutrient and contaminant discharges, provide an upland refuge and transition zone for wildlife, and reestablish grassland and bayland habitat. The ecotone slope component of the project provides an opportunity to demonstrate the concept, study the system, and begin to answer key operational and management questions that will apply to the District and other wastewater treatment facilities around and adjacent to the San Francisco Bay over the next century.
- The purpose of the treatment wetland is to explore the long-term potential for OLSD and other wastewater treatment facilities adjacent to the San Francisco Bay to contribute to a future shoreline that incorporates natural systems to help adapt to sea level rise, lower nutrient and contaminant discharges, and reestablish critical upland and bayland habitat largely lost from San Francisco Bay.

1.3 Site Conditions

The proposed project is located on the eastern shoreline of San Francisco Bay, approximately 4 miles south of the Oakland International Airport. The project site consists of a fifteen-acre parcel located at 2536 Grant Avenue in the community of San Lorenzo, unincorporated Alameda County, California, sited adjacent to and east of the existing OLSD wastewater treatment plant (WWTP), as shown in **Figure 1-3**. The OLSD WWTP is jointly owned and operated by OLSD (75%) and Castro Valley Sanitary District (25%). OLSD provides wastewater collection and treatment services to customers in the communities of San Lorenzo, Ashland, Cherryland, Fairview, portions of Castro Valley, and designated areas of the cities of San Leandro and Hayward. With a treatment capacity of 20 million gallons per day (gpd) and an average dry weather flow of 12.2 million gpd, the treatment plant serves approximately 68,400 households in both districts. The sewage treatment system is comprised of the treatment plant, 273 miles of sewer lines, and 14 lift stations. Wastewater is treated to a secondary level through physical, biological, and chemical processes, and the effluent is disposed of via the East Bay Dischargers Authority (EBDA) pipeline and outfall into the deep waters of San Francisco Bay. An annual total of 60 million



SOURCE: ESA PWA, 2013

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Figure 1-3
Site Plan

1. Primary Effluent Bypass to Equalization Basin
2. Equalized Flow Returned to Headworks
3. Equalization Basin Inflow/Outlfow Piping
4. Nitrified Secondary Effluent to Treatment Wetlands
5. Treatment Wetlands
6. Ecotone Distribution Piping
7. Ecotone Seepage Slope
8. Ecotone Outflow Piping to Drainage Pump Station
9. Containment Berm

gallons of treated effluent is recycled and used for local golf course irrigation. Biosolids are disposed of annually at the Altamont landfill.

The proposed site is currently undeveloped and contains potential jurisdictional wetlands and a former Union Pacific Railroad spur from the project site's northwestern corner to the southeastern corner. The railroad spur was historically used to haul in chemicals and other materials for WWTP operations, though it is no longer in use. There is a utility corridor that runs north/south along the eastern boundary of the project footprint that contains parallel high voltage transmission lines and low voltage overhead power lines, as well as an underground Shell Oil pipeline. The project site is bordered to the south by the Bockman Canal.[1] The parcel is zoned under the Alameda County General Plan, Eden Area, for Public Facility and Industrial land uses.

Elevations range from approximately six to seven feet (NAVD88). Topography is generally flat throughout the project site with some minor topographic depressions and minor hummocks composed of past fill materials. Surface runoff is generally slow to drain due to the lack of topographic relief. The site also provides local stormwater drainage for a portion of the surrounding industrial area and Grant Avenue. An approximately 10-foot wide ditch traversing the site from the northeast to the southwest collects stormwater flows from Grant Avenue to the north via a culvert. Another stormwater ditch traverses the site from east to west, receiving flows from the industrial areas and localized road network to the east of the project site. The two stormwater ditches come together at the southwestern corner of the project, and discharge to Bockman Canal via a tide gate structure.

1.4 Project Objectives

The project objectives, related to the present operation of the water treatment facility and to the future operation of the facility and the management of the Bayshore with rising sea levels, are defined as follows:

- Provide onsite temporary storage for peak wastewater flows during periods when the WWTP is experiencing peak flows.
- Reduce peak discharges into the EBDA pipeline to reduce operating costs and allow flexibility in plant maintenance activities.
- Provide nitrification of effluent, and wastewater polishing and denitrification through the enhancement wetlands and ecotone slope.
- Provide ancillary stormwater quality benefits by enhancing treatment of existing discharges of industrial and commercial stormwater flows that discharge to the site before they enter the Bockman Canal System.

[1] The Bockman Canal System drains the western watershed area south of San Lorenzo Creek. The Bockman Canal is considered to be its own watershed, which contains a series of storm drains and canals that drain the western part of San Lorenzo. The canal itself runs east to west through San Lorenzo. Like San Lorenzo Creek, Bockman Canal is concrete lined and tidal west of the Union Pacific railroad tracks (County of Alameda, 2010).

- Demonstrate how treated wastewater may be discharged through seepage habitat levees to restore historical moist grassland/bayland ecotone while treating reclaimed wastewater and increasing resilience to sea level rise.
- Provide moist grassland/bayland habitat.
- Demonstrate alternative treatment for nutrient removal through a variety of configurations with varying soil substrate and vegetation types to help ascertain ideal configurations for larger future projects.

1.5 Proposed Project

The project includes construction of a dual-purpose facility consisting of a wet weather equalization facility to accommodate infrequent peak wet-weather flows and a demonstration project of a wastewater treatment wetland coupled with an upland ecotone for polishing secondary treated wastewater. The project would include the following components, listed in **Table 1-1**.

TABLE 1-1
PROJECT COMPONENTS

- 8 million gallon Wet Weather Equalization Facility (Basin and Containment Berm)
- Natural Treatment Wetlands
- Primary Effluent Bypass Line to Equalization Basin
- 600-linear foot Ecotone Slope
- Nitrification Facility
- Pump Station to lift Secondary Effluent to Nitrification Facility
- Realigned Storm Drain Channel and Bioswales
- Pump Station to Ecotone Slope
- Return Pipeline to Secondary Clarifier Pumping Station for pumping to headworks
- Mitigation Wetlands

1.5.1 Proposed Facilities

This section describes the facilities under the proposed project listed in Table 1-1. **Figure 1-3** shows the areas within the OLSD site where the project activities would occur.

Wet Weather Equalization Facility

OLSD would construct a wet weather flow equalization basin to provide temporary storage for up to 8 million gallons (MG)[2] of primary treated wastewater during infrequent peak wet weather flow (PWWF) discharges during large storm events and periods of increase inflow and infiltration (I&I) to allow a reduction in peak flows discharged to the EBDA pipeline. The storage basin would provide capacity to store up to 8 MG of secondary treated wastewater for up to 24 hours.

[2] There are three design flow considerations to be included in design of the proposed project. One design flow is associated with peak wet weather flow inputs to the equalization basin, which are anticipated to occur rather infrequently; the second design flow is associated with baseline, year-round flows to the natural treatment wetlands and ecotone slope, and the third design flow is for the rerouted stormwater channels. The equalization basin is being designed to accommodate both a total storage capacity of 8 MG, as well as peak inflow rates of up to 22,300 gallons per minute, or 8 MG over 6 hours.

During normal flows and for the majority of the year, the facility will support a treatment wetland system within the basin. One side of the basin will form the seepage ecotone slope.

As shown in the project flow schematic in **Figure 1-4**, the equalization basin/treatment wetland will be receiving two flow streams:

1. Wet weather flows from the primary effluent bypass channel, and
2. Typical daily flows from the secondary clarifier outlet piping.

The equalization facility would divert peak wet weather flows by gravity, store them for a period of hours, and then return the stored volume to the WWTP following the peak. The facility will allow OLSD to reduce peak discharges to the EBDA pipeline, which will reduce pumping and operating costs and increase flexibility in operations during PWWF events.

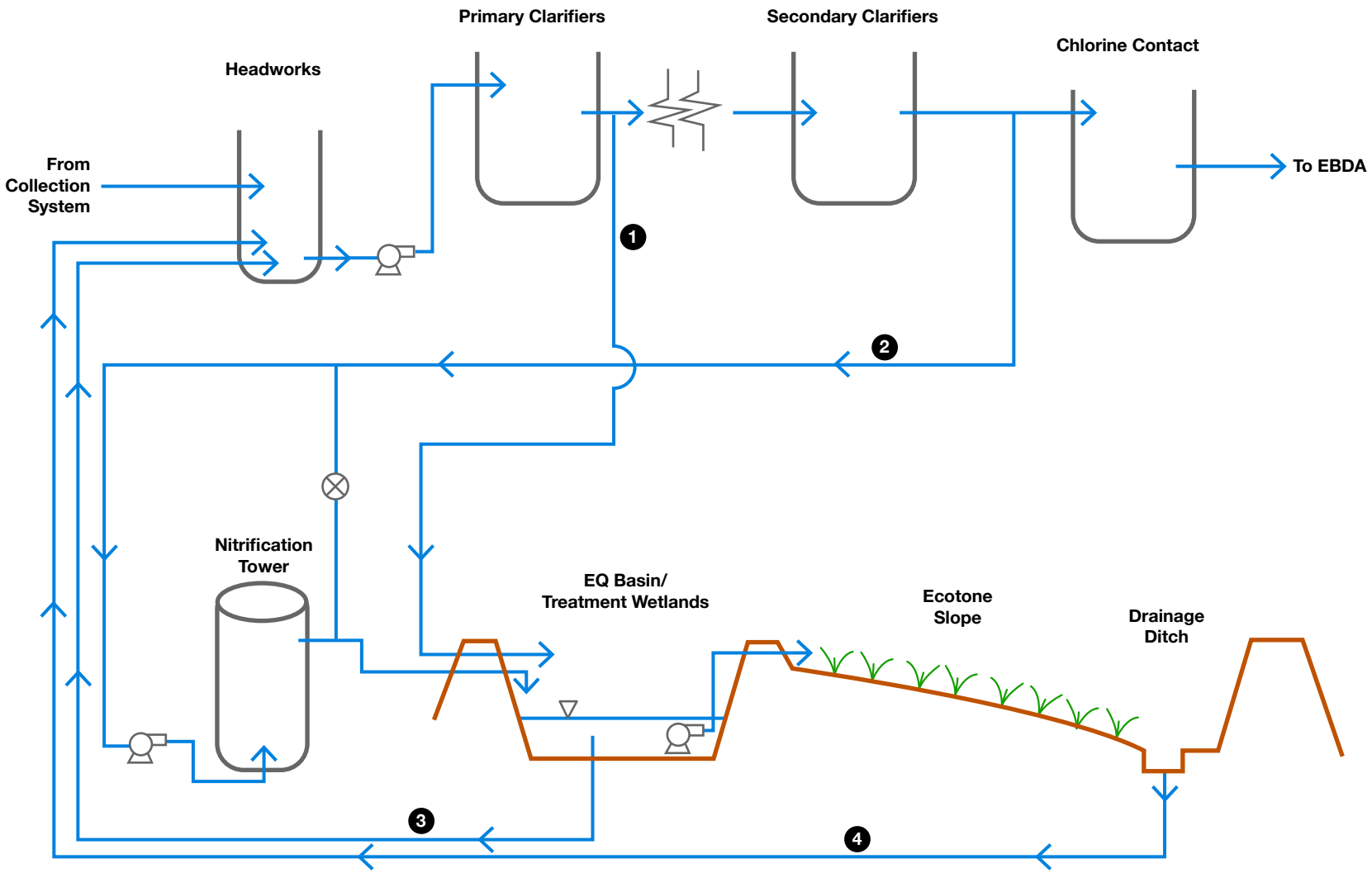
The proposed facility would provide an additional safety factor to meet OLSD compliance objectives, including effluent quality and prevention of unpermitted discharges. All equalized flows will return by gravity to the WWTP's secondary clarifier drainage pump station, and pumped back to the headworks for treatment after wet weather flows recede.

The storage basin would include a perimeter containment levee constructed about 8-10 feet above existing grades with 3:1 slopes. The perimeter levee would be about 2,080 feet in length and would create a storage basin that would contain about 3.2 acres on the project site. Depending upon the engineering properties of the soils at the project site, the containment levee could be constructed with soils excavated from the project site or with imported materials if the onsite materials are not suitable for levee construction. A geotechnical investigation will be performed as part of design to assess the properties of the onsite soils for use as levee fill material and to develop recommendations for levee construction to address settlement, seepage, and other site specific geotechnical criteria.

Treatment Wetland

The equalization basin would be designed to function as two acres of treatment wetland to provide wastewater polishing under normal daily flow conditions and reduce nutrients in the OLSD's effluent during dry weather flows. The treatment wetlands would be entirely contained within the containment berm and polished wastewater would be metered to the seepage habitat levee, which would allow flows to seep into constructed grasslands/baylands ecotone. Secondary treated wastewater would be diverted to the treatment wetlands via piping and after being treated through a nitrification unit process. Rather than building a containment tank that would be used only occasionally to hold 8 MG, the storage basin would be able to treat a continuous low flow of treated wastewater. The treatment wetland would be designed to accommodate 100,000 gpd (70 gpm), with the ability to treat more flow if available. Flow could vary by season as denitrification rates within the treatment wetland and evapotranspiration rates on the ecotone slope will vary substantially based on temperature (microbiological rates tend to slow down during winter months).

The treatment wetland would provide water quality enhancement and polishing prior to wastewater discharge to the ecotone slope (described below). The treatment wetlands would also



1. Intertie to Primary Effluent Bypass Channel, Route to EQ Basin
2. Intertie to Secondary Clarifier Outlet Piping, Route to Treatment Wetlands
3. EQ Flow Return Line, Route to Headworks
4. Econtone Subsurface Flows, Route to Headworks

SOURCE: ESA PWA, 2013

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Figure 1-4

WWTP and Project Flow Schematic

provide the initial stage of denitrification to reduce nitrate concentrations in the wastewater effluent applied to the ecotone slope.[3]

Within the equalization basin, the basin will be graded to maximize treatment wetland functions. A series of internal berms would be established within the treatment wetland to create flow paths that maximizes flow length to treatment area. These berms would be constructed at a 3:1 slope and extend approximately 1 foot above the normal operating water surface of the treatment wetlands, or approximately 3 feet above the basin floor elevation. Within the flowpath, micro-topography would be incorporated to create alternating areas of deeper open water and shallow areas to support dense wetland vegetation that provide denitrification functions. The berms would also provide access to the interior of the pond for periodic maintenance and clearing of vegetation as needed. The berms would be covered with a weed control fabric or geotextile material and covered with a layer of gravel to prevent vegetation growth and allow for continued access.

Vegetation planted within the treatment wetland will alternate between bulrush and cattail species[4], commonly used in treatment wetlands, and may incorporate native varieties of these species that provide similar functions as the more traditional species.

The wetlands would be sized to provide a minimum of 7 days of hydraulic retention time.[5] It is anticipated that hydraulic retention time would vary seasonally by adjusting inflow rates to the treatment wetlands to achieve targeted denitrification levels in the wetlands.

Water depths within vegetated portions of the treatment wetland would be approximately 2 feet deep, with some deeper pools measuring 6 feet deep constructed at the end of the internal berms to create open areas of free water surface without vegetation. The deeper pools are of sufficient depth to preclude vegetation growth over time, allowing for alternating areas of dense vegetation and free water surface.

Primary Effluent Bypass to Equalization Basin

Under wet weather conditions when the WWTP is experiencing PWWF associated with wet weather events, primary treated wastewater would be routed to the wet weather equalization facility via a 24- to 30-inch diameter gravity fed pipeline. The pipeline would originate in a newly constructed structure built onto the existing primary clarifier effluent trough and housing a downward operating weir gate structure, and flow to a valve vault which will contain a common inlet/outlet piping to the equalization basin inlet/outlet structure. The inlet/outlet structure would be an elbowed pipe that would daylight at the bottom of the treatment wetlands on a riser with a cage on a concrete pad (to stabilize and prevent erosion). Peak wet weather flows would be discharged directly into the wet weather equalization facility via this structure.

[3] While the ecotone slope will be providing some addition denitrification and effluent polishing, the nitrate concentrations in the effluent would be too high to apply directly to the ecotone slope without prior treatment in the Treatment Wetland.

[4] Cattails have a very high amount of labile carbon which becomes available upon decomposition and is critical to denitrification processes. Cattails also provide metal cycling and adsorption. Bulrush are effective at metal removal and adsorption in addition to removal of pesticides and other complex organic compounds.

[5] Hydraulic retention time refers to the length of time water is held in the equalization basin.

Return Pipeline to Headworks

Discharge from the wet weather equalization facility following the storm peak would be routed back to the valve vault via the same 24- to 30-inch pipe. The valve vault will be piped to allow return flows to tee off into another return pipeline back to the headworks.

Secondary Effluent Pump Station to Nitrifying Trickling Filter/Reactor

As part of normal daily operations and when the WWTP is not experiencing PWWF, the project's design flow of 100,000 gpd would be routed from the secondary clarifier outlet piping to a tertiary nitrification trickling filter or reactor. A pump station will be needed to increase head sufficiently to lift water through the nitrification trickling filter, or reactor, for nitrification. Nitrified flows would then flow by gravity to the treatment wetlands, and onto the ecotone slope.

Outlet Structure and Pump Station to Ecotone

A concrete outlet structure would be located along the southern containment berm of the treatment wetlands. The outlet structure would incorporate flashboard risers, or a downward opening weir, to provide level control for the treatment wetlands via ultrasonic level sensor or pressure transducer and will would also include a wet well and submersible pump station. The pump station would be located within the treatment wetlands to deliver flows to the ecotone seepage slope via discharge piping and a pipe manifold.

The pump station would be sized to deliver a minimum firm capacity of 100,000 gpd with flexibility in flowrate output. The pump station will be a duplex pump station, with one duty and one standby pump, alternating operation to minimize pump wear.

Ecotone Slope

The 480-foot long ecotone slope would extend from the southern containment berm of the equalization basin and treatment wetland system. The ecotone slope would be filled above existing grade at a relatively flat 30:1 slope using approximately 11,000 cubic yards of excavated material, some cut from the equalization basin as base fill and overlaid with an approximate 3 ft thick layer of highly specified coarse and fine substrates. The slopes would be comprised of a variety of soils – low permeability silts supporting native grassland vegetation and coarser, high permeability, microaerobic alluvium that would support riparian scrub vegetation. In order to study various soil and vegetation configurations, a total of twelve "cells" would be installed within the ecotone slope. Each cell will be approximately 40 feet in width, and extend from the top to the toe of the ecotone slope. Cells will be isolated from each other with an impermeable membrane or geosynthetic material to isolate hydraulics within cells.

Four types of cells are proposed within the design, each incorporating a different combination of vegetation palettes and varying substrate materials. The four cell types proposed for the project are shown in **Table 1-2** below. Triplicates of each cell type would be incorporated into the design to provide a basis for synthesizing results, comparing performance between cells, and developing

recommendations for full scale implementation in the long term. Native species would be planted to emulate natural alluvial fan substrate, topography, and subsurface discharge patterns that were once prevalent in San Francisco Bay, but have been lost due to historical diking, drainage, fill, and flood control. Vegetation types would be targeted towards native species with relatively high treatment removal efficiencies. Two types of vegetation are proposed within the ecotone slope – wet meadow and riparian scrub. The wet meadow vegetation palette would include a grassland, sedge, and rush matrix incorporating Baltic rush, field sedge, creeping wild rye, and other rhizomatous grasses. The riparian scrub vegetation palette would include willow woodlands and sausals.

TABLE 1-2
CELL TYPES FOR THE PROPOSED PROJECT

Type	# of Cells	Vegetation Type	Substrate Type
1	3	Wet meadow	Finer silts/clays
2	3	Wet meadow	Coarser sands/silts
3	3	Riparian scrub	Coarser sands/silts
4	3	Mixed Vegetation	Finer silts with open water (depressions and swales)

The elevation of the toe of the ecotone slope would be set at approximately existing grades, and a french drain collection system will be installed at the toe of the ecotone to collect seepage flows. A berm will be constructed between this collection system and the drainage ditch at the southern extent of the project site to prevent mixing of flows.

Inlet Structure and Manifold

The ecotone slope would receive flows from a pump station located at the outlet of the treatment wetland (described above). The pump station would discharge to a manifold located at the top of the ecotone slope. The manifold will extend the length of the top of the ecotone slope. Lateral pipes providing flow to the individual cells will tee off of the inlet manifold. Each lateral will include isolation valves, a flow meter, and throttling valve to provide a means to control and monitor flow to each individual cell. Each lateral pipe will terminate with a perforated pipe to spread the discharge over the entire width of the cells. Instrumentation wiring and controls will be incorporated into the project to allow for real-time monitoring of flow and control of throttling valves to control the delivery of flow to individual cells.

Outlet Structures

The ecotone slope would incorporate a method to determine flowrates out of each individual cell to allow for monitoring of flow, water and mass balance calculations, and to quantify processes occurring within the individual cells. A collection trench with permeable gravels, similar to a french drain, would be located near the toe of the ecotone cells to allow for collection of subsurface flows. A series of vaults will be located along the trench to provide a means to concentrate flows and measure flowrates out of the system via a tipping bucket or similar flow monitoring device. Flows would ultimately flow into a pipeline for gravity routing back to the

secondary clarifier drainage pump station which would subsequently pump flows back to the WWTP's headworks.

Sampling Ports and Piezometers

Each cell within the ecotone slope would include several sampling ports and piezometers that will serve as locations to monitor concentrations of nitrate and potentially other constituents and to monitor subsurface hydraulics and depth to the phreatic water surface within the cells. Each cell would have three sampling and monitoring locations, each located within a trench filled with permeable gravels, two within the cell and one at the toe of the cell. The permeable trenches are also intended to promote mixing. As pilot project, there may be multiple iterations to the experimental design.

Figure 1-5 below shows a schematic representation of the ecotone slope, individual cells, collection trenches to promote mixing, and locations for sampling ports/piezometers and redox sensers.

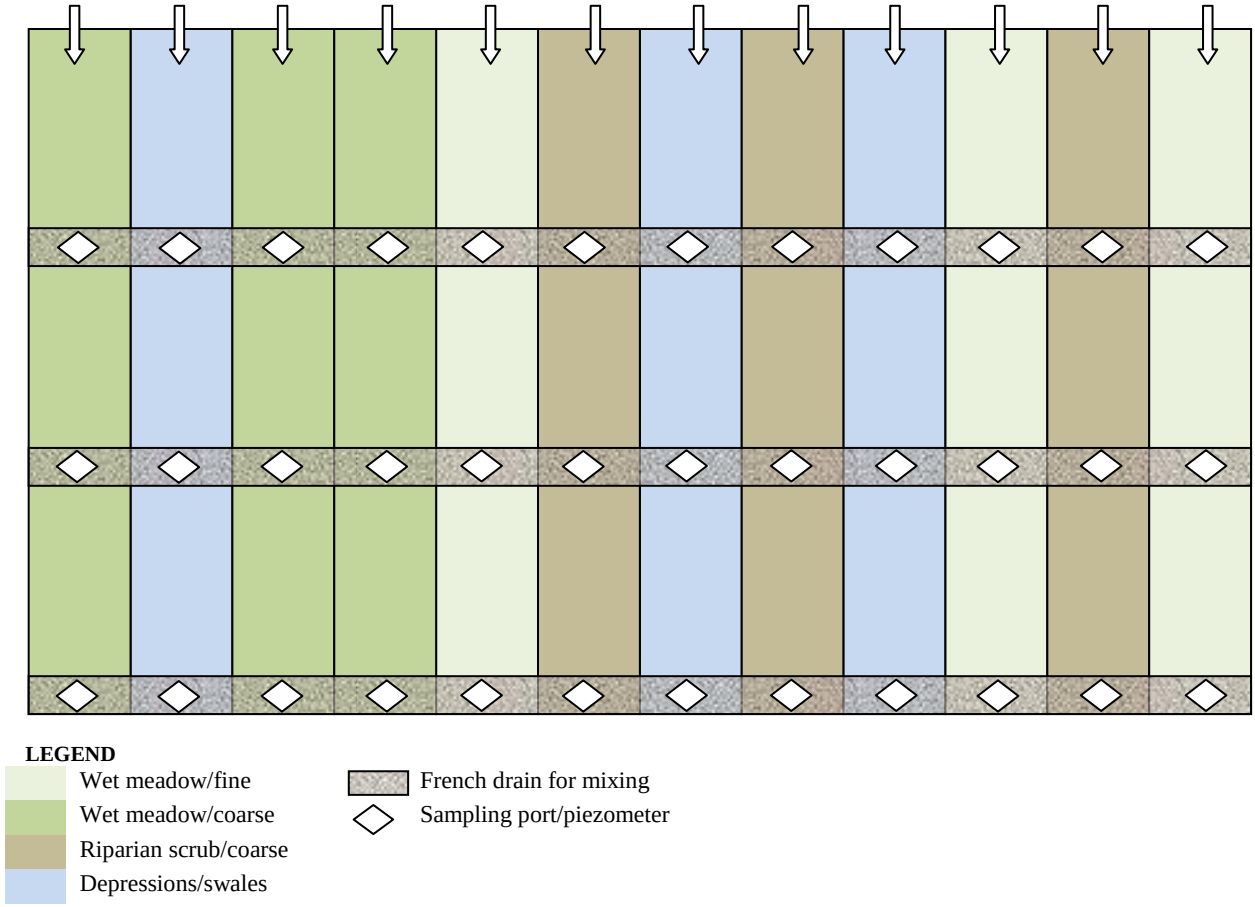

Figure 1-5
Schematic Representation of Ecotone Slope

Nitrification Facility

A new nitrification facility (above-ground concrete or steel structure) would be constructed within the existing gravel area of the WWTP adjacent to the secondary clarifiers. The nitrification facilities would be comprised of either an aerated reactor or trickling filter. The nitrification facility would receive secondary treated wastewater from the secondary clarifiers and further treat (convert ammonia to nitrate) wastewater prior to discharge to the treatment wetlands. The nitrification potential of the facility would be to provide effluent with ammonia concentrations less than 2 mg of nitrogen per liter. The treatment wetlands are expected to produce polished effluent with nitrate concentrations between 5-10 mg of nitrogen per liter.

Storm Channel Realignment and Enhancement

The project includes enhancing the existing stormwater channel that enters the site via a culvert from Grant Avenue, and rerouting the existing stormwater channel that bisects the site from the northeast to southwest around the equalization basin and modifying the channel to function as a bioswale, following guidance for stormwater best management practices identified by the California Stormwater Quality Task Force. The stormwater channel traversing the site from east to west along the southern boundary and adjacent to Bockman Canal would also be enlarged to accommodate the additional flows resulting from realignment of the other stormwater channel.

Mitigation Wetlands

A preliminary delineation of waters of the U.S. was conducted at the project location in 2011 (Monk and Associates, 2011) and was subsequently verified by the U.S. Army Corps of Engineers in April 2012 (USACE File #19025S). The delineation identified 2.23 acres (96,992 sq. ft.) of jurisdictional wetlands and 0.10 acre (4,391 sq. ft./1,500 linear feet) of " other waters" on the site. As discussed in detail in Chapter 2, Environmental Checklist, approximately half of these wetlands would be temporarily or permanently affected by the project. As part of project design, OLSD would create and enhance approximately 2.0 acres of onsite mitigation wetlands, consisting of both salt and freshwater wetlands. The mitigation wetlands would be created adjacent to existing onsite wetlands by excavating upland areas and laying back the existing slope to expand the wetland area. It appears most if not all of the wetlands would be able to be located on OLSD property; however, the parcel adjacent to OLSD property is owned by East Bay Municipal Utilities District (EBMUD). OLSD is currently negotiating an agreement with EBMUD to acquire the lower portion of this property. The location of proposed mitigation wetlands is shown on Figure 1-3.

1.5.2 Project Construction

The construction period is anticipated to begin in late spring/early summer 2014. Work would occur as allowed by weather conditions, and is anticipated to span two construction seasons.[6]

[6] Construction within jurisdictional waters and/or habitat may be further restricted by conditions contained in regulatory permits.

Earthwork and construction will occur in several phases. Broadly, the first season's construction phases include:

1. Site Mobilization
2. Equipment and Materials Delivery
3. Site Grubbing and Clearance
4. Relocation of the Stormwater Channels and Grading for Mitigation Wetlands
5. Major Grading and Earthwork for the first lift of the Equalization Basin Containment Berm, and Treatment Wetland
6. Major Grading and Earthwork for the upland ecotone slope and habitat cells.
7. Major Grading and Concrete Work for Construction of the nitrification tower.
8. Yard piping and final interties to WWTP piping.
9. Startup testing of facility.

The second lift of the containment berm would be constructed during the second construction season scheduled for late spring/early summer 2015.

An estimated 35,570 yards of cut will be generated by excavation of the compensatory mitigation wetlands, realigned stormwater channel, expanded and enhanced stormwater channel, and excavation within the containment berm. Approximately 39,600 yards of material will be needed to construct the containment berm to final grade and form the internal berms within the enhancement wetlands. This volume includes the additional 7,830 cubic yards of overburden material needed to compensate for the approximately 3 feet of anticipated settlement, and 8,610 cubic yards needed to compensate for overexcavation of berm subgrade preparation. An additional 11,090 yards of material will be needed to construct the ecotone slope. Approximately one third of this material can be Bay Muds, or less optimal soils generated from cut activities on site, to form the base of the slope. The top two thirds will be specified substrate materials that will be imported on site, consisting of both coarse and fine materials for the various cells of the ecotone. [7]

No excavated materials would be hauled offsite; any unused soil would be hauled to OLSD property located south of Bockman Canal adjacent to the biosolids drying beds for permanent stockpiling. During construction of the containment berm, imported fill would be delivered at a rate of approximately 84 trucks per day.

The types of equipment, which would be used during various phases of construction, may include but are not limited to the following:

[7] Final cut and fill calculations will be informed by geotechnical investigation conducted during the design process. It is anticipated that a portion of the excavated material would be suitable for structural use for the equalization berm and the ecotone slope; however depending on moisture content of the soil, some increment of the total excavated material may be unusable.

- Scraper
- Compactors/Rollers
- Electric Generators
- Air Hammers
- Backhoes
- Loaders
- Sprayers and rollers
- Brooms & Sweeping Equipment, Water trucks
- Concrete Mixers/Pumps/Vibrators
- Graders
- Excavators
- Cranes and/or Booms
- Trucks/Trailers
- Welding and Cutting Equipment

Construction crews would be comprised of 5-10 personnel. Parking would be available at the primary staging area (see below).

Staging and Access

Temporary designated staging would be established adjacent to the project site to accommodate materials delivery, storage, assembly, pipe laydown, and electrical configuration. The primary staging area would be located in a paved area within the existing WWTP footprint, adjacent to the existing secondary clarifiers and the northwest boundary of the equalization basin area. Primary ingress and egress for construction vehicles would be accessed from Grant Avenue through the WWTP.

Mitigation Wetlands

Mitigation wetlands would be constructed by excavating away from existing wetlands and drainage ditches to pull back banks and establish grades conducive to wetland species establishment, consistent with existing features. This work is anticipated to occur with an excavator, a dozer/scraper, a front end loader and a truck for temporarily stockpiling excavated materials for later use in construction of the containment berm and/or ecotone. An estimated 7,400 cubic yards of material would be excavated to form the mitigation wetlands. The mitigation wetlands would be planted with salt marsh species relocated from existing jurisdictional wetlands and bought from local nurseries.

Storm Channel Enhancement and Realignment

The existing storm drain channel commencing at the culvert outlet at Grant Avenue will also be expanded to provide additional stormwater quality treatment. The existing eastern bank of the existing ditch would be pulled back through excavation, and the overall bottom channel width would be increased by approximately 5 times its current width, with a newer gentler side slope. At the terminus of the bioswale, the existing storm drain channel that currently turns to the southwest and enters a culvert underneath the existing railroad will be rerouted to the eastern side of the railroad berm. The realigned storm channel will be located within the mitigation wetlands, and will be excavated approximately one to two feet deeper than wetland elevations. This work is also anticipated to occur with an excavator, a dozer/scraper, a front end loader and a truck for temporarily stockpiling excavated materials for later use in construction of the containment berm and/or ecotone.

Wet Weather Equalization Facility

The wet weather equalization facility will be constructed using an excavator, a dozer/scraper, a front end loader and a truck for temporarily stockpiling excavated materials for later use in construction of the containment berm and/or ecotone. Excavation of the bottom of the equalization facility will be conducted first to establish final grades for the internal wetlands. Material underneath the berms will be over-excavated and compacted, and berm construction will commence with compacted lifts. First season construction will only build up the containment berm to an elevation slightly higher than that of the top of ecotone slope to allow for proper settlement and consolidation of underlying Bay Muds over the course of a year. During the second season of construction, the containment berm would be constructed to final grade.

Treatment Wetland

The internal grading within the containment berm associated with the treatment wetland will largely be conducted during the initial phase of excavation associated with construction of the wet weather equalization facility. Some additional excavation will be required to form the deep pools within the treatment wetlands. Once internal berms are graded to finished grade, the access roads would be constructed using trucks delivering Class 2 aggregate base, and spread by a scraper or dozer. Inlet and outlet piping for the treatment wetlands would be constructed during construction of the containment berms. Concrete associated with the pump station and wing walls will be formed and poured during construction of the containment berm as well.

Ecotone Slope

The ecotone slope will be formed using trucks and a dozer. The initial lift of the ecotone slope will be constructed of Bay Muds and compacted to increase impermeability of this lower layer. Upon completion of this base layer, the individual cells of the ecotone would be constructed. The Bay Muds will be overlain with the varying substrates of coarser sands and finer silts as specified for the various ecotone cells. These substrates would also be applied using trucks and a dozer. A non-permeable, geotextile fabric will be installed vertically in between cells as lifts are added to the ecotone cells. The gravel trenches to induce mixing within the ecotone slopes will be constructed of well graded drain rock, and will also be constructed utilizing a permeable geotextile fabric to minimize clogging of the trenches with finer ecotone substrates. Trenches for outlet piping and the instrumentation vaults will be excavated using an excavator, and backfilled according to construction specifications.

Nitrification Facility

The nitrification facility will be constructed adjacent to the WWTP's existing secondary clarifiers. An excavator will be utilized to over-excavate for the structural foundation of the facility. The foundation will be formed, structural rebar installed, and concrete poured by truck. The nitrification facility, either a prepackaged reactor or trickling filter, and associated pump station will be built upon the structural foundation utilizing cranes and human labor. All inlet and outlet piping, valving, appurtenances, and electrical wiring will also be installed mainly by human labor.

Project-Wide Rules

It is anticipated that construction activities will be subject to regulatory permits from a variety of resource agencies. OLSD will obtain necessary approvals and necessary permits from the regulatory agencies as listed in Section 1.7 and discussed further in Chapter 2, Environmental Checklist. Construction will be completed in conformance with all conditions in the permits, including the following project-wide rules:

- Construction vehicle speed limits would be limited to 10 miles per hour within the project site;
- Stormwater and erosion control best management practices, including silt fencing, hay/straw wattles, covering haul truck loads and stockpiles to contain loose materials, applying water on active construction areas, daily sweeping, and revegetation, to prevent silt runoff to streams and wetlands would be incorporated into the project's Stormwater Pollution Prevention Plan and maintained throughout construction;
- All equipment would be in good working order; fueling and vehicle maintenance would be completed at the staging areas, located away from storm drains;
- Debris/trash/litter would be removed from the site daily;
- All work would be implemented in accordance with dust/emission control, and hazardous materials control plans. Emission control would include vehicle and equipment idling restrictions. OLSD would implement hazardous materials spill control and provide employee spill prevention/response training.
- Prior to beginning construction, public notice would be provided to local emergency responders, residents, and businesses in the vicinity.
- Fencing would be installed around the perimeter of the construction sites as necessary to exclude wildlife from the construction area, and prevent discharge of excavated material and turbid water from entering Bockman Canal.

1.5.3 Project Operation

Consistent with current operations, OLSD would continue operating the WWTP 24 hours a day, seven days a week. The WWTP would continue receiving influent wastewater consistent with its average and peak weather flow capacities. OLSD would continue to discharge effluent to the EBDA Pipeline. Upon completion of the project, approximately one percent of ADWF, or 100,000 gpd, would be redirected to the treatment wetlands and ecotone seepage slope, and flows would be returned to the WWTP's headworks. No overall change in WWTP operations or disposal to EBDA will result due to the Project.

1.6 Report Organization

This report is organized as follows:

Chapter 1, Project Description, provides an introduction to the project with project background, needs and objectives, and discusses the proposed facilities.

Chapter 2, Environmental Checklist Form, presents the CEQA Initial Study Environmental Checklist, analyzes environmental impacts resulting from the project and describes the mitigation measures that would be incorporated into the project to avoid or reduce impacts to less-than-significant levels.

Chapter 3, Mitigation Measures and Mitigation Monitoring and Reporting Program, lists the mitigation measures recommended in Chapter 2 along with the monitoring and reporting procedures.

1.7 Agency Use of this Document

OLSD, as the Lead Agency, along with the responsible agencies, will use this IS/MND to evaluate environmental impacts of the proposed project and make a decision of adopting the IS/MND and approving the proposed project. Upon adoption of the IS/MND and the mitigation measures described herein, OLSD will use this document to make written findings, consider project approval, and file a Notice of Determination (NOD).

The analyses contained within this IS/MND would also be used to support the acquisition of regulatory permits or approvals, as needed. The anticipated approvals or permits that the OLSD may be required to apply for or obtain for the proposed project are:

- United States Army Corps Clean Water Act Section 404 Individual Permit;
- United States Fish and Wildlife Service Endangered Species Act Section 7 consultation and Biological Opinion;
- California Department of Fish and Wildlife Fish and Game Code Section 1600 Lake and Streambed Alteration Agreement;
- Bay Conservation and Development Commission (BCDC) Permit;
- San Francisco Bay Regional Water Quality Control Board Clean Water Act Section 401 Water Quality Certification;
- Notice of Intent to obtain the General Construction Permit from the San Francisco Bay RWQCB;
- Authority to Construct and Permit to Operate from the Bay Area Air Quality Management District.

1.8 References

County of Alameda, 2010. Alameda County Community Development Agency, Eden Area General Plan, March 10, 2010.

Environmental Science Associates and Phillip Williams and Associates (ESA PWA), and Peter Baye, Ph. D. 2012. Initial Feasibility Study for the Oro Loma Wet Weather Equalization, Treatment Wetland, and Ecotone Demonstration Project, July 29, 2012.

Environmental Science Associates and Phillip Williams and Associates (ESA PWA), 2013. Oro Loma Demonstration Project Draft Preliminary Design Report, July, 2013.

Monk and Associates, 2011. Corps File Number 19025, Request for Jurisdictional Determination, Oro Loma Sanitary District 10-Acre Parcel, San Lorenzo, Alameda County, California, July 29, 2011.

CHAPTER 2
Environmental Checklist

1. **Project Title:** Oro Loma Sanitary District Wet Weather Equalization and Ecotone Demonstration Project

2. **Lead Agency Name and Address:** Oro Loma Sanitary District
Engineering Department
2655 Grant Avenue
San Lorenzo, CA 94580-1838

3. **Contact Person and Phone Number:** Jason Warner
General Manager
Phone: (510) 276-4700
Fax: (510) 276-1528

4. **Project Location:** 2536 Grant Avenue
San Lorenzo, CA 94580

5. **Project Sponsor's Name and Address:** Same as Lead Agency (No. 2, above)

6. **General Plan Designation(s):** Public

7. **Zoning Designation(s):** Public

8. **Description of Project:** See Chapter 1.

9. **Surrounding Land Uses and Setting.** Surrounding development includes public and industrial land uses to the north, east, and west of the project site. The project site is adjacent to the Oro Loma Sanitary District's (OLSD) wastewater treatment plant (WWTP), designated as Public Land by the Alameda County Eden Area General Plan. The project site is bordered to the south by the Bockman Canal.

10. **Other public agencies whose approval is required.** Unites State Army Corps Clean Water Act Section 404 Individual Permit; United States Fish and Wildlife Service Endangered Species Act Section 7 consultation and Biological Opinion; California Department of Fish and Wildlife Fish and Game Code Section 1600 Lake and Streambed Alteration Agreement, Bay Conservation and Development Commission (BCDC) Permit; San Francisco Bay Regional Water Quality Control Board Clean Water Act Section 401 Water Quality Certification, and Waiver of Waste Discharge Requirements; Notice of Intent to obtain the General Construction Permit from the San Francisco Bay Regional Water Quality Control Board (RWQCB); Authority to Construct and Permit to Operate from the Bay Area Air Quality Management District.

2.1 Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

☐ Aesthetics	☐ Agriculture 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 Land Use Planning	☐ Mineral Resources	☐ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☐ Transportation and Traffic	☐ Utilities and Service Systems	☒ Mandatory Findings of Significance

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

☐ 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, no further environmental documentation is required.

Signature	Date
Jason Warner	Oro Loma Sanitary District
Printed Name	For

Aesthetics

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Discussion

a) **No Impact.** There are no designated scenic vistas in the vicinity of the project. The site is not visible to sensitive receptors and visual sensitivity is low.[1] The project site and its surrounds are located in a developed industrial area identified in the Alameda County Eden Area General Plan as the "Grant Avenue Industrial Area". Industrial land uses, including the OLSD WWTP and sludge drying beds, and other industrial packaging facilities and warehouses contribute to the visual character of this area. There would not be any new above-grade structures that would limit access to a scenic vista. Therefore, there would be no impact to aesthetics associated with project implementation.

b) **No Impact.** There are no designated scenic resources in the vicinity of the project. There would be no impact to aesthetics associated with project implementation.

c) **No Impact.** The project would be consistent with the existing adjacent public and industrial facilities and visual quality of the area. Therefore, there would be no impact to aesthetics associated with project implementation.

d) **No Impact.** There are a number of light sources including building and yard lights associated with existing development and street and roadway lights in the vicinity. There would be no new source of substantial light of glare (i.e. construction or security lighting) compared to the existing lights that would affect daytime or nighttime views in the area. Therefore, there would be no impact to aesthetics associated with project implementation.

[1] In the context of visual resources, a sensitive receptor would include recreationists, residents, or motorists.

Agricultural and Forest Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**				
a) 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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a-e) **No Impact.** The project site is designated as public lands in the Alameda County Eden Area General Plan (2010) with a zoning district of public land (County of Alameda, 2010). The land within the project site is not under agricultural or forest land production, and there is no existing zoning for agricultural/forest use or a Williamson Act contract; therefore, project implementation would have no impact on agricultural and forest resources.

References

County of Alameda, Alameda County Community Development Agency, Eden Area General Plan, March 10, 2010.

Air Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

a) **No Impact.** The most recently adopted air quality plan for the San Francisco Bay Area is the Bay Area 2010 Clean Air Plan (2010 CAP). The 2010 CAP is an update to the Bay Area Air Quality Management District (BAAQMD)'s 2005 Ozone Strategy to comply with State air quality planning requirements. The 2010 CAP also serves as a multi-pollutant air quality plan to protect public health and the climate. The 2010 CAP control strategy includes revised, updated, and new measures in the three traditional control measure categories, including stationary source measures, mobile source measures, and transportation control measures. In addition, the 2010 CAP identifies two new categories of control measures, including land use and local impact measures, and energy and climate measures (BAAQMD, 2010).

BAAQMD recommends that the agency approving a project where an air quality plan consistency determination is required, analyze the project with respect to the following questions: 1) does the project support the primary goals of the air quality plan; 2) does the project include applicable control measures from the air quality plan; and 3) does the project disrupt or hinder implementation of any 2010 CAP control measures? If all the questions are concluded in the affirmative, BAAQMD considers the project consistent with air quality plans prepared for the Bay Area (BAAQMD, 2012). Any project that would not support the 2010 CAP goals would not be considered consistent with the 2010 CAP, and if approval of the project would not result in significant and unavoidable air quality impacts after the application of mitigation, then the project would be considered consistent with the 2010 CAP.

As presented in the subsequent impact discussions, the proposed project would result in no new long-term operations-related emissions and with mitigation, proposed project construction-related emissions would not exceed the BAAQMD significance thresholds for construction; therefore, the proposed project would support the primary goals of the 2010 CAP. As mentioned above, projects that incorporate all feasible air quality plan control measures are considered consistent with the 2010 CAP. There appear to be no 2010 CAP control measures that would be directly applicable to the proposed project.

The proposed project would support the primary goals of the 2010 CAP and it would not disrupt or hinder implementation of any 2010 CAP control measures. Therefore, there would be no impact associated with conflicting or obstructing implementation of the applicable air quality plan.

b) **Less than Significant with Mitigation.** Exhaust emissions significance thresholds recommended in the BAAQMD's *Revised Draft Options and Justification Report* (2009) were used to determine the significance of impacts related to air quality standard violations. The justification report provides substantial evidence to support the recommended thresholds and, therefore, OLSD has determined they are appropriate for use in this analysis. Based on the following, construction and operation of the mitigated project would not result in a violation of an air quality standard or contribute significantly to an existing or projected air quality violation. Therefore, the associated impact would be less than significant with mitigation.

Construction

Construction activities that would be associated with the proposed project would occur in six phases over two years. Project-related exhaust emissions would be generated on-site due to the use of heavy-duty diesel off-road construction equipment. Based on the activities that would be necessary to construct the project (see Chapter 1), it is estimated that required construction equipment would include a mini excavator, a front end loader, an excavator, a dozer, a bobtail water truck, and some hand equipment. It is assumed that the Phases 1, 2, 3, and 4 could occur concurrently in 2014 and Phases 5 and 6 could occur concurrently in 2015. See **Appendix A** for equipment assumptions by phase. Exhaust emissions would also be generated by construction worker daily commutes and by heavy-duty diesel tractor trailer truck. It is assumed that up to 10 construction workers would commute to the project site each workday, and up to 2,582 truck trips would be required to import fill material during 2014 and up to 867 truck trips would be required to deliver fill material during 2015. No excavated materials would be hauled offsite; any unused soil would be hauled to OLSD property located south of Bockman Canal adjacent to the biosolids drying beds for permanent stockpiling.

Criteria pollutant exhaust emissions of reactive organic gases (ROG), nitrogen oxides (NO_x), particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) from construction equipment and vehicles would incrementally add to the regional atmospheric loading of these pollutants during construction of the proposed project.

Impacts related to the project contributing to an existing or projected air quality violation and whether the project would result in a cumulatively considerable net increase of any criteria pollutant or associated precursors are judged by comparing estimated direct and indirect project exhaust emissions to the average daily emissions significance thresholds, which for short-term construction emissions are 54 pounds per day for ROG, NO_x, and $PM_{2.5}$; and 82 pounds per day for PM_{10}.

Air pollutant exhaust emissions, including ROG, NO_x, PM_{10}, and $PM_{2.5}$ that would be generated by the off-road construction equipment described above were estimated using California Air Resources Board (CARB) emission factors. CARB's Off-road emissions inventory database was used to develop air basin specific construction equipment emission factors for ROG, NO_x, and PM_{10}. The Off-road database provides data for only NO_x, PM_{10}, and total hydrocarbons (THC), so other factors identified by CARB (CARB, 2000) were applied to convert total hydrocarbon emissions rates to ROG emissions rates. $PM_{2.5}$ construction equipment exhaust emission factors were calculated by multiplying the PM_{10} emission factors by the mass fraction of $PM_{2.5}$ emissions in PM_{10} diesel exhaust, as identified by the South Coast Air Quality Management District (2006).

Tables 2-1 and 2-2 show the estimated total average daily exhaust emissions that would be associated with construction of the project in 2014 and 2015, respectively. For all assumptions and calculations used to estimate the project-related construction emissions, refer to **Appendix A**. As indicated in the tables, the total average daily construction exhaust emissions would not exceed the BAAQMD's significance thresholds. Therefore, impacts that would be associated with construction-related exhaust emissions would be less than significant.

TABLE 2-1
2014 CONSTRUCTION CRITERIA POLLUTANT EXHAUST EMISSIONS

	Average Daily Construction Emissions (pounds/day)			
Emissions Source	**ROG**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Onsite Construction - Phase 1	0.23	2.44	0.12	0.11
Offsite Vehicle Trips - Phase 1	0.01	0.09	0.00	0.00
Onsite Construction - Phase 2A	0.60	6.46	0.32	0.29
Offsite Vehicle Trips - Phase 2A	0.01	0.04	0.00	0.00
Onsite Construction - Phase 2B	0.72	7.45	0.38	0.35
Offsite Vehicle Trips - Phase 2B	0.66	21.69	0.40	0.37
Onsite Construction - Phase 3	0.08	0.77	0.04	0.04
Offsite Vehicle Trips - Phase 3	0.00	0.02	0.00	0.00
Onsite Construction - Phase 4	0.16	1.40	0.08	0.08
Offsite Vehicle Trips - Phase 4	0.01	0.03	0.00	0.00
Average Daily (pounds/day)	**2.48**	**40.39**	**1.35**	**1.25**
BAAQMD Significance Threshold	54	54	82	54
Significant Impact?	No	No	No	No

Notes: Emissions were estimated using emission factors from the Off-road emissions inventory database and EMFAC 2011. Refer to Appendix A for details on the emissions estimates.

TABLE 2-2
2015 CONSTRUCTION CRITERIA POLLUTANT EXHAUST EMISSIONS

	Average Daily Construction Emissions (pounds/day)			
Emissions Source	**ROG**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Onsite Construction - Phase 5	1.06	11.00	0.57	0.52
Offsite Vehicle Trips - Phase 5	0.94	26.95	0.57	0.52
Onsite Construction - Phase 6	0.33	2.83	0.17	0.15
Offsite Vehicle Trips - Phase 6	0.01	0.05	0.00	0.00
Average Daily (pounds/day)	**2.34**	**40.82**	**1.31**	**1.20**
BAAQMD Significance Threshold	54	54	82	54
Significant Impact?	No	No	No	No

Notes: Emissions were estimated using emission factors from the Off-road emissions inventory database and EMFAC 2011. Refer to Appendix A for details on the emissions estimates.

In addition to exhaust emissions, emissions of fugitive dust would also be generated by project construction activities associated with earth disturbance, travel on paved and unpaved roads, etc. With regard to fugitive dust emissions, the BAAQMD's *Revised Draft Options and Justification Report* recommends that lead agencies focus on implementation of dust control measures to insure that impacts would be less than significant rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. Therefore, BAAQMD basic control measures (BAAQMD, 2012), which are recommended for every construction project and contained in **Mitigation Measure AIR-1** (see below), would be implemented to ensure that impacts associated with fugitive dust emissions would be reduced to a less-than-significant level.

Mitigation Measure AIR-1: Implement BAAQMD Basic Mitigation Measures.

OLSD and/or its construction contractors shall implement the following applicable BAAQMD basic control measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to a maximum of 15 miles per hour.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne Toxics Control Measure Tile 13, Section 2485 of California of Regulations). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at OLSD regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Operations

Once construction is complete, the proposed project would result in virtually no sources of air pollutants. Therefore, there would be no net change in long-term conditions as a result of the project compared to the baseline conditions; therefore, there would be no long-term operational impact.

c) **Less than Significant with Mitigation.** Based on BAAQMD guidance, if a project would result in an increase in ROG, NO_x, PM_{10}, or $PM_{2.5}$ of more than its respective average daily mass significance thresholds, then it would also be considered to contribute considerably to a significant cumulative impact. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project would exceed the identified significance thresholds, its emissions would be cumulatively considerable, and if a project would not exceed the significance thresholds, its emissions would not be cumulatively considerable. As presented in discussion b) above, short-term construction exhaust emissions would not exceed the applicable significance thresholds and implementation of **Mitigation Measure AIR-1** (see above) would ensure that impacts associated with fugitive dust emissions would be reduced to a less-than-significant level. In addition, the project would result in virtually no long-term operational emissions. Therefore, the project would not be cumulatively considerable and cumulative impacts would be mitigated to less than significant.

d) **Less than Significant Impact.** The BAAQMD recommends that lead agencies assess the incremental toxic air contaminant (TAC) exposure risk to all sensitive receptors within a 1,000-foot radius of a project's fence line. Long-term operations that would be associated with the project would result in no new TAC emissions. However, project construction activities would generate diesel particulate matter (DPM), which is considered to be a TAC. The majority of DPM exhaust emissions that would be generated at the project site would be due to the use of diesel off-road equipment.

The closest sensitive receptors to the proposed project site would be residences off Via Harriet, Via Natal, Keller Avenue, and Bandoni Avenue to the east. The closest residences would be at a distance of approximately 1,600 feet from the project activities. There are no sensitive receptors within 1,000 feet of any of the proposed project components.

The dose to which receptors are exposed is the primary factor affecting health risk from exposure to TACs. Dose is a function of the concentration of a substance or substances in

the environment and the duration of exposure to the substance. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period when assessing TACs (such as DPM) that have only cancer or chronic non-cancer health effects (OEHHA, 2003). However, such health risk assessments should be limited to the duration of the emission-producing activities associated with the project. For the proposed project, DPM emissions that would be generated in the vicinity of any one sensitive receptor location would be limited to a period of up to a few months.

Tables 2-1 and 2-2 (above) show that the total daily average $PM_{2.5}$ emissions from on-site equipment would be less than one pound per day.[2] Because these average daily emissions are miniscule and would occur for a total of approximately 4 months in the vicinity of the residences compared to the 70-year exposure used in health risk assessments, project-related DPM emissions would not be considered substantial and would not result in a significant incremental cancer risk. Therefore, the impact related to exposing sensitive receptors to substantial pollutant concentrations would be less than significant.

e) **Less than Significant Impact.** Diesel equipment used to construct the project may emit objectionable odors associated with combustion of diesel fuel. However, these emissions would be temporary and intermittent in nature, thus odor impacts associated with diesel combustion during construction activities would be less than significant. There would be no expected operational odors associated with the proposed project and no long-term impact would occur.

References

Bay Area Air Quality Management District (BAAQMD), 2009. Revised *Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October, 2009.

BAAQMD, 2010, *Bay Area 2010 Clean Air Plan, Final Clean Air Plan Volume 1*, adopted September 15, 2010.

BAAQMD, 2012. *CEQA Air Quality Guidelines*, Updated May 2012.

California Air Resources Board (CARB), 2000, Public Meeting to Consider Approval of Revisions to the State's On-road Motor Vehicle Emissions Inventory, Technical Support Document, Section 4.13, Factors for Converting THC Emissions Rates TOG/ROG, May 2000.

Office of Environmental Health Hazard Assessment (OEHHA). 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. August, 2003.

South Coast Air Quality Management District (SCAQMD), 2006, *Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds*, October, 2006.

[2] $PM_{2.5}$ exhaust emissions are conservatively used here as a surrogate for DPM.

Biological Resources

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
4.	**BIOLOGICAL RESOURCES — Would the project:**				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

The proposed project is located just interior to the eastern San Francisco Bay shoreline in a heavily industrialized area that used to be tidal marsh. The approximately 10-acre project site is located 950 feet east of San Francisco Bay's San Lorenzo bayshore, separated from it by OLSD's WWTP. The project site is a vacant lot of remnant tidal marsh that is partially graveled and serves as a materials storage area for wastewater treatment plant operations. The site also receives stormwater runoff from Grant Avenue and surrounding industrial facilities and conveys it to Bockman Canal via a small channel. The majority of the site is dominated by the growth of non-native poison hemlock (*Conium maculatum*), a moderately invasive species that reaches heights of seven feet on the project site (Monk & Associates, 2011) to form a dense, seasonal monotypic stand. A pallet recycling company borders the site on the east, while industrialized Grant Avenue borders the site on the north and Bockman Canal borders the site on the south. OLSD WWTP drying beds are located opposite the project site south of Bockman Canal, with the Oro Loma marsh located beyond the drying beds. A tidal gate at Bockman Canal blocks most tidal flow from the site, though a small leak in the gate provides minor tidal influence in the onsite southern channel paralleling the canal.

The site is located within remnant tidal marsh but the majority, or 7.8 acres of the ten-acre site, can be characterized as upland habitat dominated by the growth of non-native poison hemlock. After the poison hemlock dies back or is mowed by the OLSD, upland grasses and forbs grow in, including foxtail barley (*Hordeum murinum* spp. *leporinum*), ripgut brome (*Bromus diandrus*), cheeseweed (*Malva parviflora*), and cut-leaf geranium (*Geranium dissectum*). The other areas of the project site, or 2.2 acres, are comprised of seasonal freshwater and brackish wetlands and a small channel within remnant tidal marsh. High salinity levels in the soil support the brackish and salt marsh plants pickleweed (*Sarcocornia californica*), fat hen (*Atriplex triangularis*), and alkali heath (*Frankenia salina*), among other wetland species.

There are six distinct wetland features on the project site: (1) a freshwater-to-brackish storm conveyance channel that traverses the site diagonally from north to south; (2) a saline channel paralleling Bockman Canal that intersects with the storm conveyance channel and flows into Bockman Canal. A leak in this tidal gate provides minor tidal influence in this channel for half its length, at which point vegetation transitions to freshwater evidenced by the growth of freshwater cattails (*Typha angustifolia*); (3) a 0.19-acre isolated patch of dense pickleweed located near the southern middle of the site, with associates alkali heath and fat hen; (4) a 0.32-acre wetland along the western boundary of the site, dominated by patchy growths of salt marsh vegetation; (5) a 0.63-acre wetland in the center of the site comprised of Italian wild rye (*Festuca perennis*) and very sparse pickleweed; and (6) a long, linear wetland formed at the eastern base of the railroad berm traversing the project site from north to south, comprised of a mixture of pickleweed, alkali heath, and plant species more associated with freshwater wetlands such as Italian rye grass, brass buttons (*Cotula coronopifolia*), curly dock (*Rumex crispus*), velvet grass (*Holcus lanatus*), and rabbitsfoot grass (*Polypogon monspeliensis*).

ESA conducted a reconnaissance-level field survey on March 28, 2013 to verify existing biological conditions, assess vegetation and wildlife habitats, and identify potential for special-status species to occur on the site. The site visit was informed by a desktop review of the following sources:

- A search of the California Natural Diversity Database (CNDDB) for the San Leandro, Oakland West, and Newark U.S. Geological Survey 7.5-minute quadrangles (CDFW, 2013).
- A species list from the U.S. Fish and Wildlife Service (Service) for the San Leandro, Oakland West, and Newark U.S. Geological Survey 7.5-minute quadrangles (USFWS, 2013).
- A search of the California Native Plant Society's Online Inventory of Rare and Endangered Plants for the San Leandro, Oakland West, and Newark U.S. Geological Survey 7.5-minute quadrangles (CNPS, 2013).
- *Preliminary Delineation of Waters of the U.S. for the Oro Loma Sanitary District 10-Acre Parcel* (Monk and Associates, 2011).
- *U.S. Army Corps of Engineers Map of Verified Delineated Waters of the U.S. for the Oro Loma Sanitary District 10-Acre Parcel* (Corps, 2011).

- *California Clapper Rail (Rallus longirostris obsoletus) Population Monitoring: 2005-11 Final Technical Report* (Liu, et. al., 2012).

The project's potential impacts on biological resources are analyzed below according to the CEQA criteria. All potential impacts would be mitigated to less-than-significant levels.

a) **Less than Significant with Mitigation.** The CNDDB documents 49 special-status[3] species in the San Leandro 7.5-minute quadrangle in which the project is located and in the eastern San Francisco Bay shoreline quadrangles north and south of the project site (Oakland West and Newark). The Service documents an additional seven species and CNPS documents an additional two plants in these quadrangles. A full list of these species is provided in **Appendix B**. Habitat for many of these species does not occur on the project site, and the following discussion is limited to the following species for which potentially suitable habitat is present: burrowing owl (*Athene cunicularia*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), saltmarsh common yellowthroat (*Geothlypis trichas sinuousa*), California black rail (*Laterallus jamaicensis coturniculus*), Alameda song sparrow (*Melospiza melodia pusillula*), California clapper rail (*Rallus longirostris obsoletus*), salt marsh harvest mouse (*Reithrodontomys raviventris*), salt marsh wandering shrew (*Sorex vagrans halicoetes*), alkali milkvetch (*Astragalus tener* var. *tener*), San Joaquin spearscale (*Atriplex joaquinana*), round-leaved filaree (*California macrophylla*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), Point Reyes bird's beak (*Chloropyron maritimum* ssp. *palustre*), San Francisco Bay spineflower (*Chorizanthe cuspidata* var. *cuspidata*), hairless popcorn flower (*Plagiobothrys glaber*), and saline clover (*Trifolium hydrophilum*).

4(a)-1. Burrowing owl. Burrowing owl is designated by the California Department of Fish and Wildlife (CDFW) as a California Species of Special Concern (SSC). Burrowing owl was documented at the Oro Loma Marsh in 1991, approximately 0.5-mile southeast of the project site (CDFW, 2013). The western boundary of the project site supports at least two ground squirrels observed during the reconnaissance survey, at which time transects were walked across the entire project site to identify burrows and burrow complexes. Several small mammal burrows were observed in and around the westernmost wetland feature and more burrows were present on a nearby wastewater treatment plant road berm. However, all burrows were small in diameter (4 inches or less) and lacked excavated soil mounds. None exhibited signs of burrowing owl presence such as whitewash, cough pellets, or feathers. Burrows located in seasonal wetland features would only be available for use part of the year. Dense, tall growth of poison hemlock on the majority of the project site would also preclude use by burrowing owls for at least part of the year and may explain the general absence of burrows across the site. No burrowing owls or their sign were observed during the

[3] For the purposes of this IS/MND, "special-status species" are those species listed under federal or state endangered species acts, designated as a "Species of Special Concern" or "Fully Protected" by the California Department of Fish and Wildlife, or that have a California Rare Plant Rank designation of List 1 or List 2.

reconnaissance survey. For these reasons, burrowing owl is considered absent from the project site.

4(a)-2. Northern harrier, white-tailed kite, saltmarsh common yellowthroat, Alameda song sparrow, and nesting birds protected by the Migratory Bird Treaty Act. Northern harrier, white-tailed kite, and saltmarsh common yellowthroat are SSCs, and white-tailed kite is designated by CDFW as a Fully-Protected Species. Suitable habitat for these and common bird species occurs on the project site. Most native, breeding birds are protected under Section 3503 of the California Fish and Game Code (Code), and raptors are protected under Section 3503.5 of the Code. In addition, both Section 3513 of the Code and the Federal Migratory Bird Treaty Act (16 U.S. Code, Sec. 703 Supp. I, 1989) prohibit the killing, possession, or trading of migratory birds. Section 3800 of the Code prohibits the taking of non-game birds and fully protected species.

The project site provides suitable foraging habitat for northern harrier and white-tailed kite. Nearby powerlines and fencelines provide hunting perches, while nearby marshes provide suitable nesting habitat for harriers and eucalyptus trees along the wastewater treatment plant fenceline provide suitable nesting habitat for kites (though unlikely due to the high baseline level of disturbance). Various shrubs and small trees on the project site including olive (*Olea europaea*), Pacific bayberry (*Myrica californica*), and strawberry trees (*Arbutus unedo*), and tall forbs such as poison hemlock, wild radish (*Raphanus raphamistrum*), and field mustard (*Brassica rapa*) provide suitable foraging or nesting habitat for saltmarsh common yellowthroat and Alameda song sparrow. During the reconnaissance survey, the common species Canada goose (*Branta canadensis*) was observed nesting on the site, and other common species likely nest on the project site as well.

Impacts could occur to resident and migratory species during project construction and operation, and during breeding and non-breeding seasons. Project construction would render the site temporarily unsuitable for birds due to the noise, vibrations, and increased activity levels associated with grubbing, earth moving, and heavy equipment operation. These activities could subject birds to risk of death or injury, and they are likely to avoid using the area during project construction. Avoidance, in turn, could cause hunger or stress among individual birds by displacing them into adjacent territories belonging to other individuals. Impacts during the non-breeding season are not considered significant, primarily due to birds' mobility and ability to access other high-quality foraging and nesting habitat in the region. The small parcel size and abundance of non-native vegetation renders the temporary habitat loss a minor one.

Project implementation is likely to increase the site's suitability for birds due to enhancement of the project site with native plants. Nesting birds are unlikely to be disturbed by research activities during project operation, as these would consist of researchers accessing the ecotone slope on foot during daytime hours and would not involve machinery. Project operations would comply with the Migratory Bird Treaty

Act and applicable Fish and Game Codes so as not to disrupt nesting birds. Construction impacts during the breeding season, however, would be considered significant due to the potential to result in "take", or loss, of a nest; disturbances during the nesting season can cause reduced incubation, reduced foraging by adults, reduced feeding of chicks, nest predation, nest abandonment, and other forms of nest failure. Construction of the proposed project during the breeding season would be subject to the following mitigation:

Mitigation Measure BIO-1: Protection of nesting birds.

Project construction activities should avoid the nesting season of February 15 through August 31, if feasible. If seasonal avoidance is infeasible, then no sooner than 30 days prior to the start of any project activity a biologist experienced in conducting nesting bird surveys shall survey the project area and all accessible areas within 500 feet. If nesting birds are identified, the biologist shall implement a suitable protective buffer around the nest and no activities shall occur within this buffered area. Typical buffers are 250 feet for songbirds and 500 feet for raptors, but may be increased or decreased according to site-specific, Project-specific, activity-specific considerations such as visual barriers between the nest and the activity, decibel levels associated with the activity, and the species of nesting bird and its tolerance of the activity. Construction activities that are conducted within a reduced buffer shall be conducted in the presence of a qualified full-time biological monitor. The USFWS and/or CDFW would be consulted if the nesting species is considered special-status outside of the nesting season.

4(a)-3. California black rail. California black rail is listed as threatened under the California Endangered Species Act and is a Fully-Protected Species. Breeding populations of California black rail are located in the marshes of San Pablo Bay approximately 20 miles north of the project area, where more than 90 percent of the total rail population is found (Manolis, 1978 and Evens et al., 1991 *in* Spautz, et al., 2005). Black rails prefer marshes that are close to water, are large (interior more than 50 meters from edge), away from urban areas, and saline to brackish with a high proportion of pickleweed, maritime bulrush (*Scirpus maritimus*), and *Grindelia*, *Juncus* and *Typha* species (Spautz et al., 2005). Moreover, protocol surveys[4] performed at stations along Bockman Canal from 2005 through 2011 did not detect California black rail (Liu, et al., 2011); these surveys were close enough to detect black rails on the project site, if they were present. The lack of appropriate habitat conditions combined with the small numbers of black rails in south San Francisco Bay marshes and lack of detection during multiple consecutive years of surveys suggest that California black rail is absent from the project site. Non-breeding black rails may be seasonally present at the Hayward Regional Shoreline 0.2 miles south of the project site (across Bockman Canal and graveled access roads); however, no secondary impacts, such as noise disturbance, to black rails at the

[4] The total survey period was 2005 through 2011. Initial surveys collected data on California clapper rails only, but in 2008 surveyors began collecting and reporting data on incidental detections of black rail, sora (*Porzana carolina*), and Virginia rail (*Rallus limicola*).

Hayward Regional Shoreline would occur because project activities would be located greater than 500 feet[5] from that marsh.

4(a)-4. California clapper rail. California clapper rail is listed as endangered under both federal and state endangered species acts and is a state Fully-Protected Species. The Roberts Landing marsh complex 0.4 miles north of the project site and Hayward Regional Shoreline 0.2 miles south of the project site (across Bockman Canal and graveled access roads) support populations of California clapper rail. Preferred clapper rail habitat is emergent salt and brackish tidal marshlands subject to direct tidal circulation and characterized by predominant coverage by pickleweed and cordgrass (*Spartina* sp.) (Goals Project, 2000). The project site is isolated from marshes north and south of the project area and lacks critical elements of suitable habitat. Moreover, protocol surveys performed at stations along Bockman Canal from 2005 through 2011 did not detect California clapper rail (Liu, et al., 2011); these surveys were close enough to detect clapper rails on the project site, if they were present. The lack of appropriate habitat conditions combined with the lack of detection over seven consecutive years of surveys suggest that California clapper rail is absent from the project site. No secondary impacts, such as noise disturbance, to California clapper rails at the Hayward Regional Shoreline would occur because project activities would be located greater than 500 feet from that marsh.

4(a)-5. Salt marsh wandering shrew. The salt marsh wandering shrew is a SSC. According to the *Life Histories and Environmental Requirements of Key Plants, Fish, and Wildlife* (Goals Project, 2000), the salt marsh wandering shrew appears to have some of the most restrictive food and habitat requirements of any mammal inhabiting the marshes of the greater San Francisco Bay Region, exceeding those of the salt marsh harvest mouse. Suitable habitat is wet, medium high salt marshes in the six- to eight-foot elevation zone characterized by abundant driftwood and other debris scattered among one- to two-foot high pickleweed. They are not thought to occur in diked marshes, but rather only in tidal salt marsh. Elevations on the project site vary from 2 to 11.8 feet, but the areas where pickleweed grows are all below 4 feet in elevation. Moreover, the project site is a diked remnant marsh comprised mostly of ruderal upland habitat. Therefore, salt marsh wandering shrew is considered absent from the project site. If it were present, any potential effects would be avoided by implementation of the avoidance, minimization, and mitigation measures implemented for the protection of salt marsh harvest mouse, described below.

4(a)-6. Salt marsh harvest mouse. The salt marsh harvest mouse is listed as endangered under both federal and state endangered species acts and is a state Fully-Protected Species. The Roberts Landing marsh complex 0.4 mile north of the project site and Hayward Regional Shoreline 0.2 mile south of the project site (across Bockman Canal

[5] This distance is used by the USFWS to determine whether a project would have indirect effects on clapper rails in neighboring habitats. Projects located more than 500 feet from rail habitat are considered to not have indirect effects.

and graveled access roads) support populations of salt marsh harvest mouse. Preferred mouse habitat is the middle and upper portions of thick, perennial salt marshes; they will move into adjacent grasslands in spring and summer when the grasslands provide maximum cover (Goals Project, 2000). They will also use similar habitat in diked wetlands adjacent to the Bay. Recent research has identified salt marsh harvest mouse in marshes dominated by alkali bulrush (*Schoenoplectus maritimus*) (Shellhammer, et al., 2010) and in mixed vegetation not dominated by pickleweed including Baltic rush (*Juncus balticus*), prickly lettuce (*Lactuca serriola*), and sow thistle (*Sonchus asper*). A total of 0.79 acres of wetlands on the project site provide suitable habitat for salt marsh harvest mouse. In tidal marshes, mice are documented to seasonally use grasslands 100 meters from any wetland edge (USFWS, 2010). Upland habitat adjacent to wetland features on the project site is low quality, comprised seasonally of dense monotypic stands of poison hemlock with seasonal successional growth of slender wild oat (*Avena barbata*), barley (*Hordeum* sp.), ripgut brome (*Bromus diandrus*), prickly oxtongue (*Helminthotheca echioides*), prickly lettuce, cutleaf geranium (*Geranium dissectum*), cheeseweed (*Malva* sp.), perennial ryegrass, and field mustard.

At least marginally suitable habitat for salt marsh harvest mouse occurs on the project site in four brackish wetland features supporting a dense cover of pickleweed, fat hen, and alkali heath. Salt marsh harvest mouse is presumed to occur in the onsite brackish wetland features dominated by pickleweed, fat hen, and alkali heath. Adjacent grasslands are very low quality relative to what is known about their preferred habitat, based on the upland species observed and the invasive presence of poison hemlock.

Project construction would impact 0.67 acre of existing suitable wetland habitat and 5.58 acres of low-quality-to-unsuitable upland habitat. During project construction, potentially-occupied habitat would be removed to construct the ecotone basin. Such removal would occur via non-mechanized means to prevent injury or death, but salt marsh harvest mice, if present, could be subject to increased risk of predation when their protective cover is removed. No other cover would be available on the project site except for the brackish wetland channel paralleling Bockman Canal at the southern boundary of the project site, and the freshwater marsh east of the existing railroad berm; both of these wetland features would be undisturbed by project activities and would provide cover for mice seeking refuge. Impacts of construction noise and vibration on salt marsh harvest mice are unknown, but mice could be temporarily subject to increased stress during construction, since their ability to avoid the noise and vibrations associated with project construction would be constrained by site conditions. Salt marsh harvest mice are unlikely to be disturbed by research activities during project operation, as these would consist of researchers accessing the ecotone slope on foot during daytime hours and would not involve machinery.

The proposed project shall be conducted such that no take of salt marsh harvest mouse occurs. Implementation of the following avoidance and minimization measures will

avoid "take" of the Fully-Protected salt marsh harvest mouse and minimize adverse project effects:

Mitigation Measure BIO-2: Remove suitable wetland habitat via non-mechanized means.

a) An agency-approved biologist[6] shall be present during all project related activities that may impact salt marsh harvest mouse or its habitat.

b) Prior to wetland vegetation removal, upland portions of the site will be mowed in accordance with current OLSD operations and maintenance practices for the purpose of removing upland cover and encouraging salt marsh harvest mice to seek cover in the undisturbed southern channel paralleling Bockman Canal, as well as discouraging their escape to all other portions of the pending construction area.

c) Removal of pickleweed, fat hen, and alkali heath vegetation from impacted wetland features shall occur prior to any other construction activities. This will provide an opportunity for the agency-approved biologist to assess the presence of salt marsh harvest mouse on the site, to assess what other areas of the project site they may escape to, and to allow salt marsh harvest mice an opportunity to escape to suitable habitat in the southern channel paralleling Bockman Canal.

d) All pickleweed, fat hen, and alkali heath vegetation in wetland features shall be removed in 1-square foot or smaller sections with non-mechanized tools under the supervision of an agency-approved biologist.

e) Pickleweed, fat hen, alkali heath, and other high-quality native plants shall be stored onsite in a healthy condition and used to replant created wetlands.

Mitigation Measure BIO-3: Install silt fencing around undisturbed suitable habitat.

a) An agency-approved biologist[6] shall be present during all project related activities that may impact salt marsh harvest mouse or its habitat.

b) After vegetation is removed from all impacted pickleweed areas, 48-inch silt exclusion fencing with wire-mesh backing shall be installed by hand along the southern channel paralleling Bockman Canal to prevent salt marsh harvest mice from entering the active work area, to protect habitat within the channel from earthmoving activities or accidental spills, and to exclude workers from the channel.

Mitigation Measure BIO-4: Implement avoidance measures during project construction.

a) An agency-approved biologist[6] shall be present during all project related activities that may impact salt marsh harvest mouse or its habitat.

b) Prior to construction, all construction workers shall take part in an agency-approved worker environmental awareness program conducted by the agency-approved biologist. The biologist shall train work crews in standard procedures

[6] The "agency"-approved biologist would be approved by USFWS and CDFW, the federal and state regulatory agencies responsible for implementing endangered species acts, and/or state regulations applicable to Fully-Protected Species.

for identifying and avoiding impacts to salt marsh harvest mouse. The awareness program will be conducted at the start of construction and thereafter as required for new construction personnel.

c) If a salt marsh harvest mouse is observed in or near the project area, all construction shall cease until the salt marsh harvest mouse is captured by a Service-approved biologist possessing the appropriate permits and relocated to other suitable habitat on the project site in accordance with a pre-approved Sensitive Species Relocation Plan (SSRP).

    1. A SSRP shall be submitted to and approved by the Service and CDFW prior to the commencement of any project activities.

d) All work in the project area shall cease immediately if a salt marsh harvest mouse is observed by any employee or the biological monitor.

e) The area beneath vehicles or equipment parked in the project area shall be checked for the presence of salt marsh harvest mouse before being moved, during construction in the roadway, and during movement of staging materials within the entire project site.

f) Vehicle speed limits on the project site shall not exceed 10 miles per hour.

Mitigation Measure BIO-5: Compensate for impacts to suitable wetland and upland habitat.

a) To compensate for the loss of 0.67 acre of suitable wetland habitat and 5.58 acres of unsuitable to low-quality upland habitat, 1.48 acres of onsite wetland habitat will be created around the ecotone berm, and 2.88 acres of onsite native upland habitat will be created on the wetland margins, the ecotone slope, and interior and exterior basin berms.

    1. This will result in an approximate 3:1 onsite replacement of wetland habitat. The 1.48 acres of saline wetland shall be dominated by dense pickleweed, alkali heath, fat hen and other native halophytes favored by salt marsh harvest mouse.

    2. The following activities will constitute an equivalent 3:1 replacement for impacts on existing upland habitat that is of no or severely degraded habitat value to salt marsh harvest mouse:

        i. Creation onsite of 2.88 acres of high-quality native upland and marsh-transition habitat, with a predominant cover of creeping wild rye (*Leymus triticoides*), sedges (*Carex* sp.), and alkali bulrush.

        ii. Marsh gumplant (*Grindelia stricta*) shall be planted along the north bank/top of bank of the southern tidal channel.

        iii. The following trees will be removed from the project site: 10 eucalyptus trees, one Chinese elm, and approximately 6 olive trees, to eliminate raptor perches and reduce predation pressure on salt marsh harvest mouse.

            - Tree removal shall occur during the non-breeding season for birds. The breeding season is typically considered to

be February 15 through August 31, thus tree removal shall occur between September 1 and February 14.

iv. As part of project operations and maintenance, OLSD will implement red fox and feral cat removal activities to reduce predation pressure on salt marsh harvest mouse.

Mitigation Measure BIO-6: Monitor compensatory wetland and upland habitat areas.

a) Created upland and wetland habitat shall be subject to vegetative success criteria, monitored annually, and maintained for vegetative success for a period of five years. Areas shall attain a minimum of 70 percent cover after three years with a native plant richness of 90 percent or greater. If the cover and native richness of created wetland and upland habitats are not meeting these goals, OLSD is responsible for additional planting, watering, weeding, eradication of invasive exotics, or any other practice necessary to achieve these requirements.

b) A monitoring report shall be provided to USFWS and CDFW by June 30th of the 5th year, and shall include documentation of percent cover and native richness, and a qualitative assessment of wetland characteristics. The report will also include an overview of the habitat creation effort and photos from stations established in baseline year 1. If success criteria are being met after five years, then no further mitigation is required. If success criteria are not being met, further onsite or offsite mitigation may be required by USFWS and/or CDFW.

4(a)-7. Special-status plants. Alkali milkvetch, San Joaquin spearscale, round-leaved filaree, Congdon's tarplant, Point Reyes bird's beak, San Francisco Bay spineflower, hairless popcorn flower, and saline clover are reported from the same U.S. Geological Survey 7.5-minute quadrangle as the project site or from surrounding quadrangles, and grow in salt or brackish marsh, remnant salt marsh, saline marsh to grassland transition zones, or freshwater marshes in grassland transition zones. With its remnant tidal marsh qualities and a variety of wetlands along a freshwater, brackish, and saline gradient, the project site has a low to unlikely potential for supporting these special-status plants. Hairless popcorn flower is a California Rare Plant Rank (CRPR)7 1A species, while round-leaved filaree, and Congdon's tarplant are CRPR 1B.1 species, and alkali milkvetch, San Joaquin spearscale, Point Reyes bird's beak, San Francisco Bay spineflower, and saline clover are CRPR 1B.2 species. No federal or state threatened or endangered species are anticipated to occur on the project site. If such a species is encountered, the appropriate agency shall be consulted. Potential impacts on rare plants would be mitigated to a less-than-significant level through implementation of Mitigation Measure BIO-3.

[7] California Rare Plant Ranks (CRPR) were formerly known as the California Native Plant Society (CNPS) Lists. Ranking status is jointly designated by CDFW and CNPS. Plants with a 1A designation are presumed extirpated in California; plants with a 1B designation are rare, threatened, or endangered in California and elsewhere; and the .1 and .2 designations mean seriously threatened in California and moderately threatened in California, respectively.

Mitigation Measure BIO-7: Survey for Rare Plants and Relocate them Onsite, if encountered.

a) Prior to project implementation, a rare plant survey shall be conducted by a qualified biologist in accordance with CDFW's 2009 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*.

b) If a CRPR species is encountered on the project site, CDFW and the California Native Plant Society (CNPS) shall be notified. The project shall first strive to avoid impacts, then minimize impacts, then compensate for impacts.

1. If direct impacts can be avoided, potential indirect impacts to the species shall be minimized by clearly marking and delineating the location in the field and encircling the species with protective silt exclusion fencing. Visible signage shall be attached to the silt fencing to instruct workers to stay out of the sensitive rare plant area.

2. If direct impacts cannot be avoided, the species shall be relocated to appropriate onsite habitat as directed by CDFW and/or CNPS. If relocation to appropriate onsite habitat is not possible until after wetland creation (described in Mitigation Measures BIO-3 and BIO-4), the species shall be potted and kept in good condition until relocation is possible, unless directed otherwise by CDFW and CNPS.

b) **No impact.** The California Department of Fish and Wildlife identifies certain vegetation communities as special-status, indicating that they are of limited distribution in California and may also support rare plants. While the project site supports several plant species that are characteristic of tidal and muted-tidal areas around the Bay (e.g., pickleweed, salt marsh bulrush, and alkali heath), the site is an isolated remnant tidal marsh now dominated by upland soils and vegetation. Approximately 0.72 acre of disconnected saline wetlands occur on the site, within an overall matrix of upland ruderal vegetation. These disjunct wetland features support the growth of a variety of native and non-native species, and the presence of halophytes is supported by residual salts in the soil rather than from tidal or muted-tidal influx. Thus, the small patch size and diluted character of the onsite saline wetlands would not meet the criteria for Pickleweed Mats Alliance, Salt Marsh Bulrush Alliance, or Alkali Heath Marsh Alliance special-status vegetation communities as intended by the designation. Therefore, project implementation would not result in impacts on special-status vegetation communities.

c) **Less than Significant with Mitigation.** The proposed project would impact federally protected wetlands, but the impact would be offset by onsite wetland creation, restoration, and enhancement. A preliminary delineation of waters of the U.S. was performed in July 2011 by Monk and Associates and verified by the U.S. Army Corps of Engineers (Corps) on April 2, 2012. The delineation identified 2.23 acres of wetlands and 0.10 acre of "other waters" on the project site, with all features having a significant nexus to Bockman Canal flowing to San Francisco Bay. The storm drain conveyance channel was classified as wetlands rather than "other waters" due to its being lined with wetland vegetation. The southern tidally-influenced channel was classified as "other waters". The

delineation further reported the parcel soil type as a hydric soil. Regarding the "large swaths" of poison hemlock on the project site, the delineation noted that despite having a facultative wetland indicator status, this plant is also found in areas with upland soils and an absence of hydrology. The project site appears to meet this characterization, as the majority of the site supports the growth of poison hemlock while only limited areas of its growth overlapped with delineated wetland features. Dominant vegetation in wetland areas was described as pickleweed, fat hen, and Italian rye grass.

As identified in the wetland delineation, a total of 2.23 acres of wetlands and 0.10 acre of "other waters" occurs on the project site. Some wetland features would be impacted but areas classified as "other waters" would not. "Other waters" would be incorporated into a realigned storm conveyance channel and retained as the active channel. In addition to undisturbed "other waters", the proposed project would leave undisturbed 0.84 acre of wetlands on the project site. Of the impacted wetland features jurisdictional to the Corps, 1.00 acre of wetlands would be filled, and 0.38 acre of wetlands would be "cut" but not filled. "Cut" areas would result from: (1) construction of the detention basin berm where an existing wetland would be bisected, with the "cut" portion persisting on the basin floor and the remaining area permanently impacted from berm construction; and (2) existing wetlands that would be temporarily impacts when they are regraded into larger, created wetlands. Of the impacted wetland features jurisdictional to the RWQCB, 0.11 acre would be temporarily impacted by the project and 1.28 acres would be permanently impacted. The higher acreage of impacted wetlands includes the 0.38 acre of wetlands persisting on the basin floor because these are governed differently by the RWQCB.

Realignment of the existing storm conveyance channel may be subject to CDFW jurisdiction and may require a Streambed Alteration Agreement (SAA). CDFW is responsible for conserving, protecting, and managing California biological resources, and Fish and Game Code Section 1602 requires an entity to notify CDFW of any proposed activity that may substantially modify a river, stream, or lake and to prepare a SAA if CDFW determines the activity may substantially adversely affect fish and wildlife resources. The conveyance channel is a decades-old engineered channel designed to convey roadside storm flows from Grant Avenue industrial facilities. It serves the natural drainage function of the remnant tidal marsh and supports vegetation that is presumed to support salt marsh harvest mouse, as discussed in (a), and may therefore be subject to an SAA. Impacts on 0.14 acre of wetlands is associated with this potentially CDFW-jurisdictional feature.

Impacts on 1.39 acres of wetland features jurisdictional to the Corps and RWQCB, a subset of which may be potentially-jurisdictional to CDFW, would be mitigated to a less-than-significant level by implementation of Mitigation Measure BIO-4.

Mitigation Measure BIO-8: Compensatory Onsite Wetland Mitigation.

a) An agency-approved biologist shall be present during all project-related activities that may impact jurisdictional wetlands and "other waters".

b) Prior to construction, all construction workers shall take part in an agency-approved worker environmental awareness program conducted by the agency-approved biologist. The biologist shall train work crews in standard procedures for identifying and avoiding impacts to wetlands. The awareness program will be conducted at the start of construction and thereafter as required for new construction personnel.

c) The southern tidally-influenced channel shall be protected by installation of silt fencing in accordance with Best Management Practices and Stormwater Pollution Prevention Program (SWPPP) measures described in*, Hydrology and Water Quality*.

d) Wetlands will be created and enhanced onsite at a minimum 1:1 mitigation ratio or as otherwise directed by the permitting agencies.

e) Created and enhanced wetlands shall be subject to success criteria and monitored annually for a period of five years. Wetland creation shall be considered successful if hydrology and vegetation requirements are met at the end of the five year period. At the end of the five year period, a preliminary delineation of waters shall be conducted in accordance with the Corps' 1987 *Wetland Delineation Manual* and the 2008 *Regional Supplement for the Arid West Region*. A five-year monitoring report shall be provided to USFWS and CDFW by June 30th of the final year, to include wetland data sheets as documentation of hydrology and vegetation. The report will also include an overview of the wetland creation effort and photos from stations established in the salt marsh harvest mouse baseline Year 1 report. Because hydric soils may require many years of saturation before establishing, created wetlands are presumed to eventually meet soil requirements if hydrology and vegetation criteria are met. If hydrology and vegetation success criteria are met after five years, then no further mitigation is required. If success criteria are not being met, further onsite or offsite mitigation may be required by USFWS and/or CDFW.

d) **Less than Significant Impact.** No migratory wildlife corridors, migratory stopover sites, or native wildlife nursery sites are present on the site, and no direct impacts to these biological resources are expected. The project area is heavily industrialized and located between a pallet recycling facility and the OLSD WWTP, and utility towers traverse the vacant lot east of the proposed ecotone basin. The commercial character of the project site provides a high baseline disturbance level to which any wildlife species that frequent the project site or surrounding area would be habituated. During the reconnaissance survey, the common species mallard duck was observed with ducklings on the project site; habitat supporting such nesting birds would be created and enhanced onsite per Mitigation Measure BIO-2 (upland) and Mitigation Measure BIO-4 (wetland). Birds would experience only a temporary unavailability of onsite habitat during project construction, and ample higher-quality habitat is available in the marshes north and south of the project area. Therefore, any temporary impacts resulting from the project would be less than significant.

e) **Less than Significant Impact.** The proposed project would not conflict with any local policies or ordinances protecting biological resources. The project site is designated as

public lands in the Alameda County Eden Area General Plan (2010) with a zoning designation of public land and a land-use designation of Light Industrial and Research & Development/Office. The parcel is also a special precinct in the County's Urban Design Framework (County of Alameda, 2010). However, the plan for the Eden Area does not contain a biological resources or similar element. Additionally, the associated San Lorenzo Specific Plan is not applicable because it also does not contain elements for the protection of biological resources and was prepared specifically for the San Lorenzo Village Center. Accordingly, the proposed project would not conflict with Eden Area General Plan or San Lorenzo Specific Plan policies protecting biological resources.

The Hayward Area Shoreline Planning Agency (HASPA) is a joint powers agency of representatives from the Hayward Area Recreation and Park District, East Bay Regional Park District, and the City of Hayward with a primary purpose of coordinating agency planning activities and carrying out policies for the improvement of the Hayward Shoreline. The proposed project is located within the HASPA planning area (HASPA, 1993). The project is consistent with the group's Hayward Area Shoreline Planning Program Shared Vision (HASPA, 1993) which identifies objectives to preserve wetlands, restore degraded wetlands, enhance the ecological productivity of the environment, and restore habitat for threatened and endangered species.

Accordingly, the proposed project would not conflict with any local policies or ordinances protecting biological resources.

f) **No Impact.** There is an approved *East Alameda County Conservation Strategy* (ICF International, 2009) for eastern Alameda County but the project site is not located within its boundaries, therefore the project would not conflict with the provisions of an adopted or approved local or regional conservation plan.

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Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

Cultural resources include historic architectural resources, archaeological resources, and human remains. Paleontological resources include fossilized remains of vertebrate and invertebrate organisms, fossil tracks and trackways, and plant fossils. This section is based on the Cultural Resources Survey Report completed for the project (Koenig, 2013) and provides an assessment of potential impacts on cultural and paleontological resources that might be present in the vicinity of the proposed project. Mitigation measures to reduce impacts to a less-than-significant level are identified.

ESA completed a records search at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University on June 3, 2013 (File No. 13-1492). The review included the Area of Potential Effect (APE) and a 0.5 mile radius around the proposed project. Previous surveys, studies, and archaeological site records were accessed. Records were also reviewed in the Historic Property Data File for Alameda County, which contains information on sites of recognized historical significance including those evaluated for listing in the National Register of Historic Places, the California Register of Historical Resources, the California Inventory of Historical Resources, California Historical Landmarks, and California Points of Historical Interest. The purpose of the records search was to (1) determine whether known cultural resources have been recorded within or adjacent to the APE; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites; and (3) develop a context for the identification and evaluation of cultural resources.

The records search indicated that six cultural resources studies have been completed within or immediately adjacent to the project area. None of these studies resulted in the identification of any cultural resources including archaeological sites or historic-period architectural resources. No cultural resources, including prehistoric or historic-period archaeological sites have been previously identified within the current project area. The records search identified five historic-era cultural resources within 0.5 mile of the project area. These resources are outside of the

project area and will not be impacted by the proposed project. No prehistoric archaeological resources have been previously recorded within a 0.5 mile radius of the project area.

ESA surveyed the project area on June 5, 2013. Survey transects were no greater than 15-meters wide. The project area had been recently mowed and ground visibility was approximately 25% with numerous rodent holes and exposed patches increasing visibility. The soil was a dark gray sandy gravel fill. No archaeological resources, including midden soil, shell fragments, or other evidence of past human use, were identified in the project area. One historic-period structure, a railroad spur, was identified in the project area.

A standard gauge railroad spur was identified in the project area during the survey. The railroad spur was recorded on a Department of Parks and Recreation form 523 and temporarily designated OLSD-ESA-01. The tracks are associated with the 1969 OLSD WWTP and were previously used to deliver materials to the plant. In 1947 the State Board of Health required all jurisdictions dumping raw sewage into fresh waters to provide treatment sufficiently adequate to avoid pollution. In order to comply with this requirement the OLSD acquired land at the west end of Grant Avenue to construct a sewage treatment and disposal plant. Construction of the new OLSD WWTP began in 1948 and was completed in 1950. In 1964 the State Water Resources Control Board required new treatment standards, and a modern sewage treatment plant was constructed at the site. The plant was completed in 1969 (Oro Loma, 2006).

The railroad spur is no longer in use; current plans include dismantling the tracks. No defining individual features or elements, such as trestles, signals, poles, etc., were identified in the project area in association with the railroad spur. The spur does not appear to be a significant resource eligible for listing in the California or National Registers. The tracks are associated with the establishment and operations of the 1969 OLSD WWTP, which is a modern and upgraded facility not considered a significant event in the history of the region (Criterion 1/A) nor is the plant associated with a significant individual (Criterion 2/B). The railroad tracks do not possess architectural merit and are not architecturally significant (Criterion 3/C). They would also not likely yield information important to history (Criterion 4/D). Based upon this information the railroad does not appear railroad spur is not eligible for listing in the California or National Registers and no further consideration of this resource is necessary.

a) **No Impact.** CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register, or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. The following discussion will focus on architectural and structural resources. Archaeological resources, including archaeological resources that are potentially historical resources according to Section 15064.5, are addressed in section b, c, and d below.

   ESA surveyed and evaluated the existing railroad spur (associated with the 1969 OLSD WWTP) for its historic significance and concluded that it is not eligible for listing in the

California or National Registers because it does not meet the evaluation criteria due to a lack of important historical and architectural associations (Koenig, 2013). As such, the structure is not considered a historical resource as defined under CEQA Section 15064.5 and the proposed project would have no impact on historical resources.

b) **Less than Significant with Mitigation.** This section discusses archaeological resources, both as historical resources according to Section 15064.5 as well as unique archaeological resources as defined in Section 21083.2 (g).

No unique prehistoric or historic-period archaeological resources were identified within the project area during the background research or surface survey. Based on the results of the surface survey, nearby site distribution, and previous disturbance in the project area no additional archaeological investigation or construction monitoring is recommended at this time. In the unlikely event that archaeological resources are uncovered during project implementation the following mitigation measure would reduce potential impacts to a less-than-significant level.

Mitigation Measure CR-1: Inadvertent Discovery of Cultural Resources.

If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet shall halt and the Oro Loma Sanitary District and the U.S. Army Corps of Engineers shall be notified. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA *Guidelines*, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), preservation in place may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the Oro Loma Sanitary District, the U.S. Army Corps of Engineers, and the affiliated Native American tribe(s), if applicable. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

c) **No Impact.** Paleontological resources are the fossilized evidence of past life found in the geologic record. Despite the tremendous volume of sedimentary rock deposits preserved worldwide, and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils—particularly vertebrate

fossils—are considered to be nonrenewable resources. Because of their rarity, and the scientific information they can provide, fossils are highly significant records of ancient life.

Rock formations that are considered of paleontological sensitivity are those rock units that have yielded significant vertebrate or invertebrate fossil remains. This includes, but is not limited to, sedimentary rock units that contain significant paleontological resources anywhere within its geographic extent. The project area is underlain by artificial fill and San Francisco Bay Mud deposits. These types of soils would not likely yield significant paleontological remains because they are surface deposits that are not considered fossil-bearing rock units (SVP, 1995). As such, the proposed project would have no impact to paleontological resources.

d) **Less than Significant with Mitigation.** There is no indication that the project area has been used for burial purposes in the recent or distant past. In the unlikely event of the discovery of any human remains during project construction activities, work would be halted. Damage to human remains would be a potentially significant impact. Implementation of the following mitigation measure would reduce potential impacts to a less-than-significant level.

Mitigation Measure CR-2: Inadvertent Discovery of Human Remains.

In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the Alameda County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) shall be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the Oro Loma Sanitary District and the U.S. Army Corps of Engineers for the appropriate means of treating the human remains and any grave goods.

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Energy

	Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
	ENERGY — Would the project:				
a)	Result in a substantial increase in overall or per capita energy consumption?	☐	☐	☒	☐
b)	Result in wasteful or unnecessary consumption of energy?	☐	☐	☐	☒
c)	Require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d)	Conflict with applicable energy efficiency policies or standards?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** Construction of the project would consume both direct and indirect uses of energy, primarily in the form of fuel, throughout the construction period (i.e., 2014 and 2015). Direct energy use would include the consumption of petroleum for the operation of construction equipment (including excavators, a front end loader, a dozer, a water truck, and handheld equipment), construction vehicles (such as dump and delivery trucks), and employee vehicles. Indirect energy use would include the extraction and refining of crude oil to make the fuels used during construction of the proposed project. Energy consumption that would be associated with construction of the project would not represent a substantial increase in energy consumption and would be temporary in nature.

OLSD currently produces all of its power from solar panels, digesters, and a gas power plant. Proposed facilities, including the pump station, would be served by existing onsite power sources, and additional service from PGE would not be required. Therefore, this impact is less than significant.

b) **No Impact.** The proposed project would utilize energy during construction and operation; however, there would be no wasteful or unnecessary consumption of energy. There would be no impact.

c) **No Impact.** Construction and operation of the proposed project would require a minimal amount of energy. It would not require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects. Therefore, there would be no impact.

d) **No Impact.** The proposed project would not conflict with any energy efficiency policies or standards and would have no impact.

Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, AND SEISMICITY — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
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 substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial 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?	☐	☐	☐	☒

Discussion

The USDA Natural Resource Conservation Service (NRCS) has a single mapped soil type for the site: Reyes clay, drained. The site has minimal fill material on top of the native soils (Monk & Associates, 2011).

ai) **Less than Significant Impact.** The site is located in a seismically-active region of California that is part of the Coast Ranges geomorphic province. This region is characterized by northwest trending valleys and mountain ranges running subparallel to the San Andreas Fault Zone. The closest active fault to the project site is the Hayward Fault Zone which is located approximately 3 miles to the east (Jennings, 1994). According to the U.S. Geological Survey (USGS) Working Group, the San Andreas Fault and other regional active faults, including the Hayward and Calaveras faults, pose the greatest threat

of significant damage in the Bay Area (USGS, 2003). The three faults exhibit strike-slip orientation and have experienced movement within the last 150 years.[8]

The Alquist-Priolo Earthquake Fault Zoning Act requires the delineation of zones and sufficiently active and well-defined faults by the California Department of Conservation, California Geological Survey or CGS, formerly known as the California Division of Mines and Geology (CDMG).[9] The purpose of the Act is to restrict construction of structures intended for human occupancy along traces of known active faults. Alquist-Priolo Zones are designated areas most likely to experience surface fault rupture, although fault rupture is not necessarily restricted to those specifically zoned areas. The project site is not located in an Alquist-Priolo Earthquake Fault Zone nor is it located on or immediately adjacent to an active or potentially active fault. The active faults nearest to the project site are the Hayward Fault located approximately 3 miles east of the project site, and the San Andreas Fault located approximately 15 miles southwest. Although fault rupture is not necessarily bound by the limits of the hazard zone, it is considered unlikely to occur in areas outside of the mapped fault rupture hazard zone. Therefore, based on the current project location and design, which does not include housing or facilities for human occupancy, the potential for damage to property or injury/loss of life to people as a result of fault rupture is considered less than significant.

aii) **Less than Significant Impact.** Seismic activity in the region is dominated by the San Andreas Fault system, which includes the San Andreas, Hayward, and Calaveras faults. Recent studies by the USGS (2008) indicate that there is a 63 percent likelihood of a Richter magnitude 6.7 or higher earthquake occurring in the Bay Area in the next 30 years.

The Association of Bay Area Governments (ABAG) has developed Earthquake Shaking Hazard Maps, which predict the potential for ground shaking during major earthquakes on the active faults in the Bay Area. The proposed project is located in an area with high earthquake shaking potential (ABAG, 2003). Predicting seismic events is not possible, nor is providing mitigation that can entirely reduce the potential for injury and damage that can occur during a seismic event. Although some structural damage is typically not avoidable during an earthquake, the proposed project does not include the construction of habitable spaces. Therefore, the proposed project would not increase the exposure to people or associated structures to increased risk of loss, injury, or death at the project site due to seismic ground shaking; this impact would be less than significant.

aiii) **Less than Significant Impact.** Seismic shaking of this intensity can also trigger ground failures caused by liquefaction, potentially resulting in foundation damage, disruption of

8 A strike-slip fault is a fault on which movement is parallel to the fault's strike or lateral expression at the surface.

9 An active fault is defined by the State of California is a fault that has had surface displacement within Holocene time (approximately the last 11,000 years). A potentially active fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not, of course, mean that faults lacking evidence of surface displacement are necessarily inactive. Sufficiently active is also used to describe a fault if there is some evidence that Holocene displacement occurred on one or more of its segments or branches (Hart, 1997).

utility service and roadway damage.[10] The soils most susceptible to liquefaction are clean, loose, uniformly graded, saturated, and fine-grained and occur close to the ground surface, usually at depths of less than 50 feet. Considering the close proximity to the San Francisco Bay margin, the site is underlain by artificial fill over map estuarine (Bay Mud). The potential for liquefaction susceptibility at the project site is very high, as a result of the artificial fill over the estuarine mud (USGS, 2006). The proposed project would not include the construction of any habitable structures. Although liquefaction may occur at the site, the potential damage would likely be minimized through the implementation of current building code requirements. The proposed project would be required to adhere to the most current version of the California Building Code, which includes specifications and seismic design criteria that are created to minimize damage from anticipated groundshaking and secondary effects of liquefaction. In addition, as part of the proposed project California licensed geotechnical engineer would prepare a geotechnical report. The proposed project would be required to implement the recommendations from this report, which assess the potential impacts associated with liquefaction in accordance with the California Building Code. Incorporation of the design criteria into project construction would limit the potential damage to less-than-significant levels. The project impact would be less than significant.

a.iv) **No Impact.** The proposed project would be located on a project site, which has a relatively level topography and would not be subject to slope failure. In addition, there are no adjacent slopes that could adversely affect the project site. Therefore, the proposed project would not be adversely affected by potential impacts associated with seismically induced landslides.

b) **Less than Significant Impact.** Construction of the proposed project, including ground-disturbing activities such as grading and other related earthwork, would temporarily increase site exposure to these erosion factors. The proposed project would be required to prepare and implement a SWPPP, as described more fully in the Hydrology and Water Quality section, below. The SWPPP would include specific BMPs (e.g., silt fences, fiber rolls, and dust suppression) to prevent or minimize such erosion during construction. For these reasons, the project's impact with regard to erosion and loss of topsoil would be less than significant.

c) **Less than Significant Impact.** As stated in a) and b) above, the project site is underlain by soft Bay Mud deposits and fill materials placed during original construction of the existing WWTP. If not engineered to current standards, fill materials and Bay Mud deposits could be inadequate to support new improvements such as those proposed by the project. Nonetheless, the proposed project would be required to adhere to the recommendations found in the project geotechnical report and requirements of the most recent version of the California Building Code, which includes specifications for site preparations such as compaction requirements for foundations. Therefore, with incorporation of building code requirements and oversight of earthwork activities by a

[10] Liquefaction is the process by which saturated, loose, fine-grained, granular, soil, like sand, behaves like a dense fluid when subjected to prolonged shaking during an earthquake.

California licensed geotechnical engineer, the potential impacts associated with unstable soils would be less than significant. Potential impacts related to liquefaction are discussed under Comment to a.ii) above.

d) **Less than Significant Impact.** Depending on the clay and silt content, some soils can expand or shrink with changes in water content. In general, the effects of expansive soils can damage foundations, concrete slabs, and aboveground structures over long periods of time. The proposed project would be required to implement the recommendations from a design-level geotechnical investigation in accordance with the California Building Code, which includes requirements to identify foundation soils that could be affected by expansive soils. Therefore, with implementation of recommendations made by a licensed geotechnical engineer in accordance with current building code standards there would be a less-than-significant impact related to expansive soils.

e) **No Impact.** The proposed project does not require the use of septic tanks or any other alternative wastewater disposal system. Therefore, the project would have no impact related to the support of septic systems.

References

Association of Bay Area Governments (ABAG), 2003. Earthquake Shaking Potential [map]. Available online at quake.abag.ca.gov/shaking/, accessed September 30, 2013.

Jennings, C. W., 1994. *Fault Activity Map of California and Adjacent Areas*, California Division of Mines and Geology Data Map No. 6, 1:750,000.

United States Geological Survey (USGS), 2003.*USGS Fact Sheet 039-03*, Working Group 02.

United States Geological Survey (USGS), 2006. Map of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California.

United States Geological Survey (USGS), 2008. Working Group on California Earthquake Probabilities (WG07), *Fact Sheet 2008-3027, Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years?*, pubs.usgs.gov/fs/2008/3027/fs2008-3027.pdf.

Greenhouse Gas Emissions

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7.	**GREENHOUSE GAS EMISSIONS — Would the project:**				
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** Based on the following analysis, construction and operation of the project would not generate greenhouse gas (GHG) emissions, either directly or indirectly, that would have a significant impact on the environment.

Construction

The majority of proposed project-related GHG emissions would be generated on-site due to the use of heavy-duty off-road equipment estimated to include a mini excavator, a front end loader, an excavator, a dozer, a bobtail water truck, and hand equipment. Phases 1, 2, 3, and 4 could occur in 2014 and Phases 5 and 6 could occur in 2015. The hours of operation per day by equipment and the number of required work-days would vary depending on the construction phase (see **Appendix A**). GHG emissions would also be generated by construction worker daily commutes and by heavy-duty diesel tractor trailer trucks that would be required to haul imported fill to the project site.

The BAAQMD's *Revised Draft Options and Justification Report* (BAAQMD, 2009) identifies qualitative and quantitative operations-related thresholds of significance for GHG emissions. For projects other than stationary sources, the qualitative threshold is noncompliance with a qualified climate action plan or qualified general plan. The quantitative threshold is annual operational emissions of more than 1,100 metric tons carbon dioxide equivalent (CO_2e). For stationary source projects, there is only a quantitative threshold of 10,000 metric tons CO_2e per year. There is no threshold established for emissions of GHG generated during project construction. However, for a conservative study, this analysis applies the BAAQMD's threshold of 1,100 metric tons CO_2e per year for non-stationary source projects.

Project construction equipment GHG emissions were estimated using CARB's off-road construction equipment diesel fuel consumption rates for the Bay Area. GHG emissions for off-road construction equipment were estimated by multiplying the total diesel fuel consumed by each piece of equipment by CO_2, N_2O, and CH_4 emission factors obtained from The Climate Registry (TCR) (2013) for diesel fuel combustion. N_2O and CH_4

emissions were multiplied by their respective global warming potentials and added to the CO_2 emissions to obtain CO_2e emissions.

GHG emissions from motor vehicles used during construction were estimated using the same general methodology described for criteria pollutants from construction vehicles (see Air Quality, above). However, since the EMFAC2011 model provides GHG emission factors only for CO_2 emissions, N_2O and CH_4 emission factors for gasoline and diesel combustion were obtained from TCR (2013). GHG emissions in the form of CO_2e were calculated by multiplying the estimated total miles travelled by project-related worker vehicles and haul trucks by the GHG emission factors, then multiplying the N_2O and CH_4 emissions by their respective global warming potential, and then by adding the CO_2, N_2O, and CH_4 emissions.

Estimated construction GHG emissions that would be associated with construction in 2014 and 2015 are presented in **Tables 2-3 and 2-4**, respectively. Refer to **Appendix A** for the assumptions used to estimate GHG construction emissions that would be associated with the project.

TABLE 2-3
2014 CONSTRUCTION GHG EMISSIONS ESTIMATE

Emission Source	**CO_2e**
Onsite Construction - Phase 1	9.40
Offsite Vehicle Trips - Phase 1	1.54
Onsite Construction - Phase 2A	29.21
Offsite Vehicle Trips - Phase 2A	2.81
Onsite Construction - Phase 2B	23.96
Offsite Vehicle Trips - Phase 2B	138.21
Onsite Construction - Phase 3	3.15
Offsite Vehicle Trips - Phase 3	1.23
Onsite Construction - Phase 4	5.91
Offsite Vehicle Trips - Phase 4	1.23
Total Construction Emissions (metric tons)	**216.66**
Significance Threshold (metric tons)	1,100
Significant Impact?	**No**

TABLE 2-4
2015 CONSTRUCTION GHG EMISSIONS ESTIMATE

Construction Activity Source	**CO_2e**
Onsite Construction - Phase 5	8.50
Offsite Vehicle Trips - Phase 5	45.86
Onsite Construction - Phase 6	2.82
Offsite Vehicle Trips - Phase 6	0.88
Total Construction Emissions (metric tons)	**58.06**
Significance Threshold (metric tons)	1,100
Significant Impact?	**No**

As indicated in **Tables 2-3 and 2-4**, short-term total project construction-related GHG emissions would be up to approximately 217 metric tons CO_2e in 2014 and 58 metric tons CO_2e in 2015, which are both considerably lower than BAAQMD's quantitative threshold of 1,100 metric tons CO_2e per year for non-stationary sources. Therefore, GHG emissions that would be associated with construction of the project would represent a less-than-significant impact.

Operations

Once construction is complete, the project would result in virtually no direct sources of GHG emissions; however, there would be minor indirect emissions associated with electricity use to power several project-related pumps. It is estimated that the total electricity demand for operation of the pumps would be approximately 1.49 kW, 24-hours per day, which is equal to approximately 13,070 kW-hrs per year. Using PG&E and USEPA emission factors for electricity use, the total annual indirect emissions that would be associated with the proposed project would be approximately 2 metric tons CO_2e, which would be well below the 1,100 metric tons significance threshold (see Appendix A for details). Therefore, the long-term operational impact associated with generation of GHG emissions would be less than significant.

b) **No Impact.** There are no adopted GHG-related plans, policies, or regulations that would be applicable to the proposed project. No impact would occur.

References

Bay Area Air Quality Management District (BAAQMD), 2009. Revised *Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October, 2009.

The Climate Registry (TCR), 2013. Table 13.1 US Default Co2 Emission Factors for Transport Fuels. [http://www.theclimateregistry.org/downloads/2013/01/2013-Climate-Registry-Default-Emissions-Factors.pdf].

Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☒	☐	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
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?	☐	☐	☐	☒

Discussion

a, b) **Less than Significant Impact.** Project construction activities would likely require the use of limited quantities of hazardous materials such as fuels, oils, lubricants, and solvents. The improper use, storage, handling, transport or disposal of hazardous materials during construction could result in an accidental release exposing construction workers, the public and the environment, including soil and/or ground or surface water, to adverse effects.

However, there are laws and regulations that govern the transport, use, storage, handling and disposal of hazardous materials to reduce the potential hazards associated with these activities. California Occupational Safety and Health Administration (Cal/OSHA) is

responsible for developing and enforcing workplace safety standards, including the handling and use of hazardous materials. Transportation of hazardous materials is regulated by the federal Department of Transportation (DOT) and California DOT or Caltrans. Together, federal and State agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of accidental release. In addition, the SWPPP would include BPMs that control the use, storage, and transport of hazardous materials during construction. Therefore, the transport, use, storage, handling and disposal of hazardous materials for the proposed project would be adequately controlled through existing regulatory requirements and the potential impact during construction would be less than significant.

Operation and maintenance of the proposed project could also involve the transport, use, storage and disposal of small quantities of hazardous materials such as cleaners, fuels, lubricants, and hydraulic fluids that would be relatively consistent with existing operations. Handling of hazardous materials is covered by federal and State laws which minimize worker safety risks from both physical and chemical hazards in the workplace. As such, workers would be HAZWOPER trained as required for the activities involving hazardous materials. Businesses that use hazardous materials are required to submit a Hazardous Materials Business Plan to the local Certified Unified Program Agency, which performs inspections to ensure compliance with hazardous materials labeling, training, and storage regulations. For example, hazardous materials must be stored in containers according to the manufacturer's guidelines and appropriately labeled. As an existing facility with current use of hazardous materials, the Hazardous Materials Business Plan would be required to be updated to reflect any changes that might occur from the proposed project.

Compliance with existing safety regulations and widely-accepted industry standards would minimize the hazard to the public and the environment. Construction and operation of the proposed project would be required to comply with the California fire code and local building codes. Therefore, with compliance with existing laws and regulations governing the transport, use, storage, handling and disposal of hazardous materials, the proposed project would have a less-than-significant impact.

c) **No Impact.** As discussed b) above, the project could involve handling of hazardous materials during construction and operation. Compliance with environmental laws and regulations would reduce the potential for any release of those materials to adversely affect onsite workers, the environment or the public. There are no schools located within a quarter mile of the proposed project. Therefore, there would be no impact related to potential exposure of hazardous emissions or acutely hazardous materials, substances, or wastes within one-quarter mile of a school.

d) **Less than Significant with Mitigation.** The project site is not included on the databases maintained by the State Water Resources Control Board. However, he database lists neighboring leaking underground tank cleanup sites at 2584 and 2600 Grant Avenue. 2584 Grant Avenue is located immediately adjacent to the project site at the Thompson and Thompson Fence Company. The potential contaminate of concern was gasoline from

an underground storage tank removed in 1992. The groundwater surrounding the site was periodically sampled between 1996 and 2005. Results of the sampling indicated that the groundwater contaminates were all below water quality criteria. 2600 Grant Avenue is located across the street from the project site (Oro Loma Sanitary District). The released chemicals included benzene, diesel and gasoline from an underground storage tank removed in 1992. The impacted soils were excavated, as a result soil and groundwater samples confirmed that the site was eligible for closure as of June 3, 2013. Furthermore, the project site is not likely to be effect by the contaminated soil or groundwater as the contaminates are moving away from the project site (DTSC, 2013 and SWRCB, 2013). If contamination is present in areas proposed for excavation, the workers, the public or the environment could become exposed to adverse effects, which could be a significant impact. However, with implementation of a soil management plan, as required by **Mitigation Measure HAZ-1**, the potential impact would be less than significant.

Mitigation Measure HAZ-1: The OLSD shall implement the following measure:

Prior to commencement of construction activities, the OLSD shall prepare and implement a Soil Management Plan as approved by the San Francisco Bay Regional Water Quality Control Board. The Soil Management Plan shall be prepared by a qualified environmental consulting firm and shall include protocols for all earthwork activities that might encounter suspected contamination, emergency contact information, and minimum personal protective equipment requirements for onsite construction workers. Any suspected contaminated subsurface materials shall be segregated, covered, and profiled for appropriate offsite disposal in accordance with California Occupational Safety and Health Administration requirements and the receiving facilities requirements. The San Francisco Bay Regional Water Quality Control Board shall be notified of any suspected contamination and OLSD shall only proceed with earthwork activities following direction from the San Francisco Bay Regional Water Quality Control Board or local Certified Unified Program Agency. Any required further excavation as directed by the overseeing agency shall be completed prior to recommencement of construction.

e) **Less than Significant Impact with Mitigation.** The proposed project is located approximately 1.5 miles northwest of the Hayward Executive Airport located a 20301 Skywest Drive in Hayward. The Hayward Executive Airport is comprised of a 543-acre campus with two parallel runways, and owned and operated by the City of Hayward However, construction and operation of the proposed project would not result in a safety hazard for people working in the project area. Additionally, the project area, although located greater than two miles from the Oakland International Airport, is within the Oakland International Airport influence area.

The *Hayward Executive Airport Land Use Compatibility Plan* published by the Alameda County Community Development Department in August 2012 (ESA, 2012), is the official airport land use compatibility plan (ALUCP) for the Hayward Executive Airport. Based on a review of the *Hayward Executive Airport Land Use Compatibility Plan*, the project site lies within the Airport Influence Area for the Hayward Executive Airport; however the project site is located outside of the community noise equivalent level (CNEL) noise exposure contour for the Hayward Executive Airport.

Although the ALUC does not have the authority under state law to require that all actions, regulations, and permits be referred for review, the ALUC requests that certain types of actions be referred to the ALUC for determination of consistency with the ALUCP prior to their approval by the local jurisdiction. For example, the scope or character of certain proposed major land use actions, including other non-residential development such as wastewater treatment facilities, is such that their compatibility with airport activity may be cause for concern. Even though these actions may be generally consistent with the local general plan or specific plan, sufficient detail may not be known to enable a full airport compatibility evaluation at the time that the general plan or specific plan is reviewed. The project site is not located within the 7 safety zones identified in the ALUC. However, the ALUC identifies that land uses with certain characteristics could represent a hazard to safe air navigation in the vicinity of Hayward Executive Airport. These characteristics include, but are not limited to: (1) land uses that generate smoke or rising columns of air, and (2) land uses within approach and climb out areas that attract large concentrations of birds. The proposed project is not expected to generate measurable amounts of smoke or steam and would not attract large concentrations of wildlife (birds) that might pose a hazard to safe air navigation.

Code of Federal Regulations, Title 14, Part 77, *Safe Efficient Use and Preservation of the Navigable Airspace* (14 CFR Part 77) establishes the federal review process for determining whether proposed development activities in the vicinity of an airport have the potential to result in a hazard to air navigation. 14 CFR Part 77 identifies criteria that govern which projects require notice to be filed with the Federal Aviation Administration (FAA) as well as identifying standards for determining whether a proposed project would represent an obstruction "that may affect safe and efficient use of navigable airspace and the operation of planned or existing air navigation and communication facilities". Objects that are identified as obstructions based on these standards are presumed to be hazards until an aeronautical study conducted by the FAA determines otherwise.

The proposed project is approximately 5,000 feet from the runway of the Hayward Executive Airport. FAA regulations require a notice and plans to be submitted to the FAA to determine if design review is warranted. Proposed facilities would be less than 10 feet above grade and are not anticipated to present a hazard given the existing surrounding development. Compliance with FAA notification requirements would ensure this impact would be reduced to less than significant.

Mitigation Measure HAZ-2: FAA Courtesy Notice.

Prior to commencement of construction activities, the OLSD shall provide plans to the FAA for review in accordance with 14 CFR Part 77.

f) **No Impact.** The proposed project is not within two miles of a private airstrip. There would be no impact.

g) **Less than Significant Impact.** The proposed project would not significantly interfere with emergency response plans or evacuation plans. The proposed project would not

impede or require diversion of rescue vehicles or evacuation traffic in the event of a life-threatening emergency. The impact would be less than significant.

h) **No Impact.** The project site is located in an industrial area of San Lorenzo. The project site is not located within any Very High Fire Hazard Severity Zones (County of Alameda, 2010). No impact would occur.

References

Department of Toxic Substances Control (DTSC), 2013. *DTSC's Envirostor Database*. Available online at http://www.envirostor.dtsc.ca.gov/public/mapfull.asp?global_id=&x=-119&y=37&zl=18&ms=640,480&mt=m&findaddress=True&city=2536%20grant%20ave%20san%20lorenzo&zip=&county=&federal_superfund=true&state_response=true&voluntary_cleanup=true&school_cleanup=true&ca_site=true&tiered_permit=true&evaluation=true&military_evaluation=true&school_investigation=true&operating=true&post_closure=true&non_operating=true, accessed September 25, 2013.

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Environmental Science Associates (ESA), *Hayward Executive Airport Land Use Compatibility Plan*, Prepared for County of Alameda Community Development Agency Planning Department, August 2012.

State Water Resources Control Board (SWRCB), 2013. *Geotracker*. Available online at http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=2536+grant+ave+san+lorenzo, accessed September 25, 2013.

Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) 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?	☐	☐	☐	☒
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Discussion

a, b) **Less than Significant Impact.** The project site is located in the San Francisco Bay basin, which is located in the South Bay Basin watershed between the San Mateo Bridge and the San Francisco-Oakland Bay Bridge (RWQCB, 2011). Project construction would involve activities such as excavation, soil stockpiling, and grading, which would dislodge soil particles. The dislodged soil particles, if not properly managed, could get washed into receiving waters (e.g., Bockman Canal) by rain or by water used during construction causing sedimentation that could impact water quality; this would be a potentially significant impact.

The proposed project would require coverage under the San Francisco Bay Regional Water Quality Control Board (RWQCB) Construction General Permit (Order 2009-0009-DWQ) (Construction General Permit) because work areas would disturb more than one acre. The Construction General Permit requires the preparation of a SWPPP and implementation of site-specific BMPs to control erosion, sedimentation and release of hazardous materials associated with construction activity. The OLSD or its contractor would file permit registration documents with the San Francisco Bay RWQCB, which would include at a minimum, a Notice of Intent (NOI), site maps, drawings, a Storm Water Pollution Prevention Plan (SWPPP), and contact information. The SWPPP must be prepared by a Qualified SWPPP Preparer and SWPPP implementation during construction of the proposed project must be overseen by a Qualified SWPPP Practitioner. The objectives of the SWPPP are to identify pollutant sources that may affect the quality of stormwater discharge, and to implement BMPs to reduce pollutants in stormwater discharges. The SWPPP for the proposed project would include implementation of, at a minimum, the following elements:

- Good site management "housekeeping" requirements for construction materials, waste management, vehicle storage and maintenance, landscape materials (if applicable), and other potential pollutant sources. These would typically include proper management of construction site materials and equipment; covering and/or stabilization of loose soils and stockpiles; tracking controls; proper use, containment and management of portable toilets and other sanitation facilities; development of a spill response plan and containment of potentially hazardous materials; and prevention of oil, grease, or fuel leaks in to the ground, storm drains or surface waters.
- Non-stormwater management, which includes washing vehicles and cleaning streets in a manner that prevents non-storm water discharges from reaching surface water or municipal drainage systems.
- Erosion controls, which include measures to protect the site from wind erosion and requirements for soil covers for inactive areas and all finished slopes, open space, utility backfill, and completed lots. Stabilization techniques shall include mulching and installing silt fences, when necessary to prevent erosion of stockpiled soils.
- Sediment controls, which typically require establishing perimeters (e.g. hay bales, sand bag dikes, or straw waddles) around work areas and stabilizing all construction entrances and exits
- Run-on and runoff controls
- Periodic site BMP inspection, maintenance and repairs.

The requirements of the Construction General Permit, including development and implementation of a SWPPP, would be sufficient to reduce the potential construction-related water quality impacts summarized above to a less-than-significant level.

The proposed project will be operated in conformance with OLSD's existing NPDES Permit No. CA0037869, and proposed facilities are designed to contain and return flows

to the wastewater treatment plant headworks. The project would also comply with Title 22 requirements for irrigation of secondary treated effluent for irrigation, which restricts the release of recycled water to surface waters. Article 4 in Title 22 of the California Code of Regulations sets water quality standards and treatment reliability criteria for recycled water, and establishes regulatory requirements for use of recycled water to protect its beneficial uses for land applications and/or industrial uses.

The internal basin within the containment berm will receive two flow streams related to the dual function of the facility. The normal operation of the facility will consist of delivering nitrified, secondary treated effluent to be polished through the natural treatment wetlands and subsequent subsurface irrigation through the terrestrial ecotone slope. During wet weather events, the facility will also receive primary treated effluent to be equalized for a period of up to 24 hours. These wet weather events are anticipated to occur once or twice per year on average. Both flow streams will be discharged back to the WWTP's headworks for retreatment.

The subgrade of the internal basin has been placed at an elevation of -1 ft NGVD, believed to be well within the younger Bay Muds underlying the site. These muds, which naturally exhibit low permeability, will be compacted to increase the impermeability and reduce the potential for groundwater discharge. Given its low lying elevation ,a positive pressure is also anticipated in which groundwater would be trying to enter the basin rather than basin water trying to enter the groundwater, much akin to a gaining or losing stream's interactions with groundwater. Moreover, the normal operation of the basin will be as treatment wetlands flowing with approximately two feet of depth, resulting in minimal hydrostatic pressures. Therefore, potential effects to groundwater are not anticipated.

Proposed facilities have been designed to provide for irrigation of the ecotone slope and recapture of irrigation water at the based of the slope, with subsequent return to the plant headworks. The ecotone slope will tie into the southern containment berm of the equalization basin and treatment wetland system, extending approximately 480 ft in length. The slope will receive polished effluent from the natural treatment wetlands via a piped manifold discharging into a distribution trench filled with permeable gravels. This trench will be lined with an impermeable HDPE geomembrane liner to prevent flows entering groundwater prior to discharge into the ecotone seepage slope. The base of the ecotone slope will be comprised of bay mud or onsite soils compacted to form a relatively impermeable layer. Two to three feet of substrate will overlay this impermeable layer and will form the effective root zone of the cells. These substrate depths may vary by vegetation type as well. Given the large anticipated difference in permeability between the engineered substrates and the impermeable underlying Bay Muds, flows are anticipated to preferentially remain within the seepage slope and not permeate into groundwater. This is also critical from an experimental perspective for the demonstration project, as both inflows and outflows are proposed to be measured in order to be able to conduct mass balances and determine effective removal rates within the slope.

At the base of the slope, a collection trench with permeable gravels and a perforated pipe will be located to allow for collection of subsurface flows. Piping will concentrate flows into a single pipe for each cell that discharges to a prefabricated concrete vault to allow for sampling of the outflow and which could house tipping bucket style flow meters for providing a means to measure flowrates out of the system. The collection trench will also be lined with an impermeable HDPE geomembrane liner to prevent flows entering groundwater prior to collection and return to the WWTP's headworks. Finally, a separation berm would physically separate the ecotone seepage slope from the existing muted tidal drainage channel at the southern boundary of the parcel. The purpose of the separation berm is to ensure no wastewater discharges to the existing drainage channel and will prevent any mixing with onsite stormwater or muted tidal water entering the site via the tide gate structure. Project implementation would not adversely affect surface water quality, and would not violate any water quality standards or waste discharge requirements. Therefore, impacts would be less than significant.

c, d, e, f) **Less than Significant Impact.** Project implementation would result in construction of an equalization basin on the existing undeveloped site. Existing drainage of the site is south to Bockman Canal via an existing stormwater channel that bisects the site from the northeast to the southwest. This channel also conveys drainage from upstream industrial and roadway areas. Project implementation would reroute this drainage around the eastern side of the equalization basin using an enhanced bioswale channel design that would provide stormwater treatment benefit and wetland mitigation. Subsequently, the channel which runs along the southern border of the project site would be enlarged downstream of the new confluence point to accommodate the additional flow volume, and it would similarly be modified to function as a bioswale. Incorporating a bioswale design approach is anticipated to improve stormwater quality and increase infiltration within the drainage channels.

Project implementation would not significantly impact stormwater volumes or flooding tendencies. The realigned and/or modified drainage channels would be designed to have sufficient capacity to convey storm flows without flooding (as well as enhance the process of infiltration). All proposed drainage facilities and modifications would be designed in accordance with the standards and recommendations of the Alameda County Flood Control and Water Conservation District (ACFCWCD) and the Alameda County Public Works Agency. The equalization basin itself would be internally drained and capture all rainfall falling directly within the barrier embankment during storm events. It would also be integrated with OLSD WWTP design criteria for storm events. Therefore, although project implementation would alter existing drainage patterns onsite, the resulting changes would not result in increased erosion, sedimentation, or flooding on or offsite, or otherwise degrade water quality. Potential impacts of the proposed project would be less than significant.

g) **No Impact.** The proposed project does not include any construction of housing or other residential units and therefore there would be no impact related to this criterion.

h) **Less than Significant Impact.** Portions of the proposed project site, as well as portions of the existing WWTP, are located within the 100-year flood hazard area designated by the Federal Emergency Management Agency (FEMA) (2009). Most of the proposed equalization basin and proposed ecotone slope area are within the 100-year flood hazard zone, and flooding depths within this zone are estimated to be between one and three feet (FEMA, 2009). The equalization basin would be protected by a perimeter levee approximately 10 feet above the existing grade and therefore would not be subject to flooding. Structures proposed as part of the project would not impede or redirect flood flows in a manner that would exacerbate flooding elsewhere. Further, as described above, all proposed drainage facilities and modifications would be designed in accordance with the standards and recommendations of the Alameda County Flood Control and Water Conservation District (ACFCWCD) and the Alameda County Public Works Agency. Potential project impacts related to impeding or redirecting flood flows would be less than significant.

i) **No Impact.** Project implementation would not negatively alter which portions of the project site would be subject to flooding (i.e., significantly increase the risk of flood damage) or otherwise expose people or structures to a significant risk of loss, injury or death due to flooding. Further, according to mapping compiled by the Association of Bay Area Governments (ABAG), there are no dam inundation areas located within the project area, therefore there would be no impact related to failure of a dam or levee (ABAG, 2013a).

j) **Less than Significant Impact.** The project site is located on the Bay shoreline which is considered potentially susceptible to seiche waves, which are typically observed on enclosed bodies of water; however, there is no historical record of any occurring within the Bay.

Tsunami waves have been observed in the Bay most recently from the 2011 Japanese Tsunami disaster. According to modeled inundation mapping compiled by ABAG, the project site could be subject to inundation from a tsunami event (ABAG, 2013b). Many of the sources for tsunamis are located from distant sources (e.g., Alaska, South America, etc.) and would provide the OLSD WWTP some time to prepare for such an event. However, as noted above, the proposed project would not include any habitable structures and any damage incurred from a tsunami would likely be relatively easily repaired, if any were even necessary. Implementation of the proposed project would not substantially alter site topography in a manner that would change the potential exposure of people or structures to a significant risk of loss, injury or death in the event of a seiche and/or tsunami.

The project site is relatively flat with no evident sources of mudflow in the vicinity and therefore would not be considered susceptible to mudflows. In summary, the proposed project would have a less-than-significant impact related to inundation from seiche, tsunami or mudflow.

References

Association of Bay Area Governments (ABAG), 2013a. *Dam Failure Inundation Hazard Areas for South San Francisco.* Available online at http://www.abag.ca.gov/cgi-bin/pickdamx.pl, accessed September 24, 2013.

Association of Bay Area Governments (ABAG), 2013b. *Tsunami Inundation Man.* Available online at https://www.gis.abag.ca.gov/website/Tsunami/index.html, accessed September 24, 2013.

Federal Emergency Management Agency (FEMA), 2009. Map Panel 266 of 725, Map #6001C0266G, accessed September 25, 2013.

San Francisco Bay Regional Water Quality Control Board (RWQCB), 2011. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan), December 31, 2011. Available online at http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/planningtmdls/basinplan/web/docs/bp_ch1withcover.pdf, accessed September 26, 2013.

Land Use and Land Use Planning

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10.	**LAND USE AND LAND USE PLANNING — Would the project:**				
a)	Physically divide 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?	☐	☐	☐	☒
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion

a) **No Impact.** As noted above, the project site is located within the Grant Avenue Industrial Area (County of Alameda, 2010). The surrounding community is comprised of other Public and Industrial uses, including adjacent properties developed as the OLSD WWTP, OLSD biosolid drying beds, and a wooden palette manufacturing facility, and surrounded by other industrial uses including trucking yards and storage facilities. The project would not result in the direct or indirect physical division of an established community. No impact is expected.

b) **No Impact.** Land use at the project site is governed by the Alameda County Eden Area General Plan (2010), which designates the project site for Public land uses with a zoning designation of public-quasi public land. The Public Land Use category covers a number of uses including schools, libraries, churches, and public medical facilities, and other facilities that have a unique public character, such as water treatment facilities. Industrial land use parcels are used for production and manufacturing and accommodate buildings such as warehouses, self-storage facilities and production-oriented small businesses (County of Alameda, 2010). The proposed project would not conflict with land use designations/zoning or current uses at the site. This site is not located within the California coastal zone, nor is it subject to a local coastal program. Therefore, the proposed project is compatible with applicable land use plans, policies, and regulations.

The proposed project is being design to comply with environmental plans and policies that regulate wastewater treatment, including: RWQCB NPDES Permits, San Francisco Basin Plan and Antidegradation Policy, Bay Area Air Quality Management guidelines, and BCDC, as discussed in the respective analysis sections above.

c) **No Impact.** The project site does not lie within the jurisdiction of a habitat conservation plan or natural community conservation plan. Therefore, no impact would occur.

References

County of Alameda, Alameda County Community Development Agency, Eden Area General Plan, Land Use Element, March 10, 2010.

Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
11. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion

a, b) **No Impact.** The project site is located in an area classified as MRZ-1, with no known significant mineral deposits present (CDMG, 1987). In addition, there are no mines, mineral plants, oil, gas, or geothermal wells located at the project site (USGS, 2003; CDC, 2013). The local land use plans do not indicate presence of locally important mineral resources for the project site. The proposed project would not involve mining onsite. Therefore, the construction or operation of the proposed project would not alter, destroy, or limit access to any existing significant mineral resources.

References

California Department of Conservation, Division of Mines and Geology (CDMG), 1987. *Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area,* Special Report 145146, Part II, Plate 2.23. Available online at http://archive.org/stream/minerallandclass00stin#page/n121/mode/1up, accessed June 25, 2013.

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (CDC), 2013. DOGGR *Online Mapping System*, accessed June 24, 2013.

U.S. Geological Survey (USGS), 2013. *Active Mines and Mineral Plants in the U.S. 2003*. Available online at mrdata.usgs.gov/mineral-resources/active-mines.html, accessed June 25, 2013.

Noise

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
12. NOISE — Would the project:				
a) Result in 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?	☐	☐	☒	☐
b) Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☒	☐
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** Construction noise levels would be intermittent, and would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. Construction of the proposed project would temporarily increase noise levels in the project vicinity. The project is located within an industrial park that contains numerous noise generating activities, including the operation of heavy equipment, vehicle traffic, and noise from industrial processes. It is estimated that the proposed project would utilize the following equipment: a mini excavator, a front end loader, an excavator, a dozer, a water truck, and handheld equipment. **Table 2-5** identifies typical noise levels for the heavy equipment estimated to be required to construct the project. As indicated in the table, a worst-case assumption of all heavy equipment operating together at the same location would result in a maximum noise level of approximately 91 A-weighted decibels (dBA).

TABLE 2-5
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, L_{eq} at 50 feet)
Loader	79
Excavator	81
Dozer	85
Truck	88
Combined Noise Level	**91**

Source: FTA, 2006

Noise sensitive land uses include residential, mobile home parks, motels and hotels, schools, libraries, churches, hospitals, and nursing and convalescent homes. There are no noise sensitive land uses in the vicinity of the project site. The nearest noise sensitive land use is a residential community located over 1,600 feet east of the project site. Assuming a worst-case construction noise level of 91 dBA at 50 feet, the attenuated maximum construction noise at a distance of 1,600 feet would be approximately 53 dBA. As stated above, existing industries in the vicinity of the proposed project currently generate noise at a similar or above decibels range than that proposed during construction. Therefore noise generated during construction of the proposed project would not be out of character for the area. The nearest residential community is subject to elevated existing noise level sources, including traffic on Railroad Avenue, Grant Avenue, and Bockman Road; airport (plane) traffic from both Hayward Executive and Oakland International airports; and the railroad. A noise measurement collected along Grant Avenue, which was 72 dBA L_{dn}[11] (Alameda County, 2010), is considered to be generally representative of the existing noise level at the residential community.

Pursuant to County General Plan Policy P2, mitigation is required for all projects that would cause a significantly adverse community response, defined as exceeding any of the following criteria: normally acceptable L_{dn} for the land use (60 dBA for single-family residential); increase of 5 dB L_{dn} at noise-sensitive uses, and noise ordinance limits (after adoption). Since the existing noise level at the residential community exceeds the normally acceptable L_{dn} of 60 dBA for single-family residential uses, the applicable criterion is an increase of 5 dB L_{dn} over ambient conditions at the residential community. As discussed above, maximum construction noise at nearest residences would be approximately 53 dBA, which would be below ambient conditions. Therefore, given the existing background noise levels in the area and the estimated attenuated construction noise level at the nearest residences, construction noise associated with the project would not exceed the County's noise policies, and this impact would be less than significant.

Following construction, the only permanent noise source that would be associated with the project would be several 2-hp pumps, which would not operate concurrently. It is assumed that pump noise would be up to 76 dBA at 50 feet (FTA, 2006). At 1,600 feet,

[11] Ldn is the average noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.

the location of the closest residences to the site, maximum pump noise would be up to 36 dBA, which would equate to an L_{dn} of approximately 44 dBA, which would be below ambient conditions at the closest residences. Therefore, long-term operation noise associated with the project would not exceed the County's noise policies, and this impact would be less than significant.

b) **Less than Significant Impact.** Vibration impacts from construction activities primarily occur as a result of large or impact equipment. The proposed project would not include blasting, drilling, or other activities typically associated with groundborne vibration or groundborne noise. In addition, there are no uses in the vicinity of the project site that are sensitive to vibration. This would be considered a less-than-significant impact.

c) **Less than Significant Impact.** As discussed under a) above, the only permanent noise source that would be associated with the project would be several 2-hp pumps, which would not operate concurrently. It is assumed that pump noise would be up to 76 dBA at 50 feet. At 1,600 feet, the location of the closest residences to the site, maximum pump noise would be up to 36 dBA, which would equate to an L_{dn} of approximately 44 dBA. This long-term noise level would be less than existing noise levels and would not represent an increase in ambient conditions. The impact would be less than significant.

d) **Less than Significant Impact.** As discussed a) above, temporary construction activities that would be associated with the proposed project would generate noise that would be less than ambient conditions at the nearest noise-sensitive uses. Therefore, the project would result in a less-than-significant impact related to temporary increases in noise over ambient conditions.

e) **Less than Significant Impact.** The proposed project is located within 1.5 miles of Hayward Executive Airport. The proposed project would not result in the introduction of a new noise-sensitive land use. Construction workers at the site may be temporarily exposed to aircraft noise; however, construction equipment noise would mask worker exposure to aircraft noise levels. Consequently, the proposed project would have a less-than-significant impact with regard to exposure of people residing or working to excessive noise levels from a public airport.

f) **No Impact.** The proposed project would not be located within the vicinity of a private airstrip. Therefore, there would be no impact with regard to exposure of people residing or working to excessive noise levels from a private airstrip.

References

Alameda County. 2013. Code of Ordinances Chapter 6.60, Noise. Available online at: [http://library.municode.com/HTML/16425/level2/TIT6HESA_CH6.60NO.html#TIT6HESA_CH6.60NO_6.60.070SPPREX September 25, 2013.

Alameda County, 2010. Noise Element. March 30. [http://www.acgov.org/cda/planning/generalplans/index.htm] Accessed September 25, 2013.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*, May 2006.

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial 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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) **No Impact.** There would be no change in operations that would induce population growth in the area. The proposed project would have no impact.

b, c) **No Impact.** See a). The proposed project would not displace people or existing housing units or necessitate construction of replacement housing. The proposed project would have no impact.

Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the 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 following public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

a.i) **No Impact.** The Alameda County Fire Department provides fire protection and emergency medical services to the unincorporated Alameda County. The nearest fire station to the project site is, Fire Station 22 located at 427 Paseo Grande in San Lorenzo and primarily responds to the downtown, residential, and business areas of the Town of San Lorenzo (Alameda County, 2012). The proposed project would involve short-term construction activities and the operations would continue consistent with the existing practices. The proposed project would not significantly increase demand for fire protection services. Construction activities would not affect response times or service rations for fire response. There is no impact.

a.ii) **No Impact.** The Alameda County Sheriff's Department provides police services to the project area (Alameda County Sheriff, 2013). Construction and operation of the proposed project would not increase demand for police protection services. Existing security fencing would minimize the potential for security-related concerns during project construction. There is no impact.

a.iii) **Less than Significant Impact.** There are no schools within 0.5 mile of the project site. There would be no direct effect on local schools. There are two schools in the vicinity of the project area, accessible off of Grant Avenue: Arroyo High School located at 15701 Lorenzo Avenue, and Bay Elementary School located at 2001 Bockman Road (San Lorenzo Unified School District, 2013). Construction traffic along Grant Avenue is not anticipated to significantly affect access or safe routes to the school. The proposed project would not result in an increase of employees, therefore it would not result in an increase in the use of school facilities. The impact would be less than significant.

a.iv) **No Impact.** The proposed project would not result in an increase of employees, therefore it would not result in an increase in the use of recreational facilities, nor contribute to the need to build new recreational facilities. There is no impact.

a.v) **No Impact.** The proposed project would not involve new permanent employees and therefore is not expected to increase the use of other public facilities such as libraries or hospitals. There is no impact.

References

Alameda County Fire Department, Fire Stations/Facilities, ACFD Station 22, official website, https://www.acgov.org/fire/about/station22.htm, accessed August 29, 2013, updated 2012.

Alameda County Sheriff's Department, 2013. Eden Township Substation, official website, https://www.alamedacountysheriff.org/les_ets.php, accessed August 30, 2013.

San Lorenzo Unified School District, 2013. official website, http://www.slzusd.org/cms/page_view?d=x&piid=&vpid=1218758559725, accessed August 30, 2013.

Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15. RECREATION — Would the project:				
a) increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒
b) include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a, b) **No Impact.** The project site is located approximately 0.2 miles north of the 1,862-acre Hayward Regional Shoreline Park and the San Lorenzo Community Park. The project site and these recreational facilities are physically separated by the Bockman Canal and the OLSD biosolids drying property. The Hayward Regional Shoreline Park is accessible via Grant Avenue to the Bay Trail. The Bay Trail extends along the undeveloped western edge of Grant Avenue and Industrial Avenue, adjacent to the OLSD WWTP property. A trailhead and parking lot are located near the western terminus of Grant Avenue, where a spur connects this area to the larger Bay Trail network (County of Alameda, 2010). The proposed project would not disrupt access to the nearby recreational areas, and would not increase the use of the existing neighborhood and regional parks in the project vicinity. The proposed project also does not include a residential component that could contribute to a direct increase in the use of existing recreational facilities in the area or require the expansion or construction of new facilities. Furthermore, the proposed project would not result in the alteration or deterioration of existing recreational facilities. No impact is expected.

References

County of Alameda, Alameda County Community Development Agency, Eden Area General Plan, Parks and Recreation Element, March 10, 2010.

Transportation and Traffic

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. TRANSPORTATION AND TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location,that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☐	☒
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?	☐	☐	☒	☐

Discussion

a) **Less than Significant Impact.** The project site is located on the shoreline of San Francisco Bay. Access to the site is from Grant Avenue in San Lorenzo, via Interstate 880 to the Interstate 238[12] interchange toward Interstate 590 to Washington Avenue.

Interstate 880 is a six- to eight-lane freeway running north and south between the San Francisco-Oakland Bay Bridge and San Jose. The freeway passes through San Lorenzo and Hayward Acres in the Eden Area. There is a high volume of truck traffic on Interstate 880 (County of Alameda, 2010). The I-880 freeway carry average daily traffic volumes of about 223,000 vehicles in the project area, respectively (Caltrans, 2012).

Grant Avenue is an undivided two lane arterial collector street with designated bike lanes in both directions, as well as areas for onstreet parking and provides access to residential, commercial, and industrial uses in the Grant Avenue Industrial Area. Washington Avenue is a four-lane road that runs north from Grant Avenue into the southwest section

[12] Interstate 238 is a four-lane freeway that connects Interstate 580 and Interstate 880. Due to restrictions on truck travel on Interstate 580 in Oakland, Interstate 238 carries a relatively high proportion of truck traffic (County of Alameda, 2010)

of the City of San Leandro. Daily traffic volumes on Grant Avenue and Washington Avenue are between 9,500 to 17,900, and 29,000, respectively (County of Alameda, 2010). Grant and Washington Avenues are designated truck routes under the Alameda County Eden Area General Plan. The intersection of and Grant Avenue/Washington Avenue has level of service (LOS) E or F conditions during the PM peak hour and exceeds the County's LOS policy (County of Alameda, 2010).[13] Trucks provide a significant component of the motor vehicles on the circulation network in the project vicinity (County of Alameda, 2010). Truck travel is regulated by Alameda County Traffic Ordinance, which restricts routes by which heavy trucks may travel within this portion of Alameda County. Due to the number and density of industrial and commercial uses in the Grant Avenue Industrial Area, there is a high volume of traffic. It is estimated that typical truck traffic on an arterial street constitutes less than five percent of overall traffic. Truck traffic was found to constitute between 27 to 30 percent of the traffic on Grant Avenue during peak hours based upon counts conducted on January 28, 2003 (County of Alameda, 2010). Alameda County Transit buses (Route 93) serve the Grant Avenue area.

Project Construction

As described in Chapter 1, Project Description, the proposed project would construct facilities for the wet weather equalization basin, treatment wetlands, and ecotone slope, as well as ancillary stormwater channel and denitrification tower facilities. Construction activities would involve site preparation, materials delivery, grading, excavation, and construction of new facilities on the project site. Direct traffic impacts from construction of the project would be short-term and temporary. The duration of impacts related to short-term disruption of traffic flow and potential increased congestion generated by construction vehicles would be limited to the period of time needed to complete construction of the project components.

Construction activities that would generate off-site traffic would include the delivery of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, the delivery of materials throughout the construction period. Construction equipment would be delivered to and removed from the project site in phases for the different construction activities. The estimated haul truck traffic would vary depending on the activity, but would peak at approximately up to 84 trucks per day, which would yield up to 168 daily one-way trips to and from the project site, which would be spread over the course of the work day.[14] There would be up to 10 construction workers on a peak day and up to 5 on an average day, and they would commute to and from the worksite primarily before or after peak traffic hours.

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13 The operation of a local roadway network is commonly measured and described using a grading system called LOS. The LOS grading system qualitatively characterizes traffic conditions associated with varying levels of vehicle traffic

14 The estimated truck trips are based on a quantity of about 13,000 cubic yards of excavated soils being transported to an offsite location in 20-cubic yard-trucks over 40 to 60 work days, plus an additional 5 to 10 extra trucks per day delivering materials. There also would be haul trucks carrying fill material, but those in-fill trips would be less than the off-haul trips.

No material would be offhauled to an offsite location. Excess spoils and waste material would be stockpiled adjacent to the biosolids drying beds south of the WWTP. Approximately 1,260 cubic yards of material would be imported per day, resulting in an estimated 84 truck trips per day.

Construction-generated traffic would be temporary, and therefore, would not result in any long-term degradation in operating conditions on any locally used roadways for the project. The impact of construction-related traffic would be a temporary and intermittent lessening of the capacities of streets in the project area because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a heavy truck. Project construction-related traffic would not be substantial in relation to traffic flow conditions on, I-880, Washington Avenue, and Grant Avenue. The project trips would fall within the daily fluctuations of traffic volumes on I-880 (not perceptible to the average motorist), and while the traffic generated by construction activities would be noticeable (i.e., would represent a higher percent increase in traffic volumes) on the local-serving roadways serving the construction site, the effect on traffic flow would be less than significant because of the aforementioned existing acceptable levels of service at area intersections. The impact would be less than significant.

Project Operations

Long-term project operation would be similar to the existing traffic and circulation conditions within the project area, consisting of continuing maintenance trips, with no expected increase in permanent employees working onsite. The impact would be less than significant.

b) **Less than Significant Impact.** As noted above, the intersection of and Grant Avenue/Washington Avenue has LOS E or F conditions during the PM peak hour and exceeds the County's LOS policy. Level-of-service standards for roadways that are part of the Alameda County Congestion Management Program (CMP) network are intended to regulate long-term traffic increases from operation of new development and do not apply to temporary construction projects. Currently, Grant Avenue is not part of the Alameda County CMP network, and is listed in the Alameda County Eden Area General Plan as requiring long-term improvement to address LOS deficiency. For the roadways that are not part of the Alameda County CMP network, the current operating standard adopted by the County is LOS D or better during peak travel periods and LOS C during non-peak periods.

Project Operations

As described above, project operations would be similar to the existing traffic and circulation conditions within the project area, consisting of continuing maintenance trips, with little if any increase in operational and/or maintenance traffic on area roads. As such, it is reasonable to conclude that the proposed project would not result in further increases

in exceeded level-of-service standards established by Alameda County for non-CMP network roadways. The impact would be less than significant.

c) **No Impact.** The project site lies about four miles south of the southernmost part of the Oakland International Airport, and the proposed project would not place any object within the flight path for airplanes in the area. The project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. There would be no impact.

d) **Less than Significant Impact.** Neither project construction nor project operations would alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. The proposed project also would not introduce uses that are incompatible with existing uses already served by the road system that serves the project area. Therefore, the proposed project would have a less-than-significant traffic hazard impact.

e) **No Impact.** As described above, neither project construction nor project operations would alter the physical configuration of the existing roadway network serving the area, and would have no effect on access to local streets or adjacent uses (including access for emergency vehicles). There would be no impact.

f) **Less than Significant Impact.** Implementation of the proposed project would neither directly nor indirectly eliminate existing or planned alternative transportation corridors or facilities (e.g., bike paths, lanes, bus turnouts, etc.), include changes in policies or programs that support alternative transportation, nor construct facilities in locations in which future alternative transportation facilities are planned. The proposed project would not conflict with adopted policies, plans and programs supporting alternative transportation. The impact would be less than significant.

References

California Department of Transportation (Caltrans), 2012. *2011 Traffic Volumes on California State Highways,* Back AADT data for I-880 at Junction Route 238 E. Available online at http://traffic-counts.dot.ca.gov/2011all/Route505-980.html, accessed June 25, 2013.

County of Alameda, Alameda County Community Development Agency, Eden Area General Plan, Circulation Element, March 10, 2010.

Alameda County Congestion Management Agency, 2009 Congestion Management Program.

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** As described in Chapter 1, Project Description, and Section 2.9 Water Resources, the purpose of the wet-weather equalization facility is to attenuate peak wastewater flows through the WWTP and reduce peak discharge rates to the EBDA treated wastewater forcemain to is for the continued compliance with regulatory requirements of the San Francisco Bay RWQCB. The proposed project would continue operations as regulated under the 2012 NPDES permit. The impact would be less than significant. The project includes rerouting the existing stormwater channel and modifying the channel to function as a bioswale, following guidance for stormwater best management practices identified by the California Stormwater Quality Task Force.

b, e) **Less than Significant Impact.** The proposed project would not directly result in the need for expanded water, wastewater, or storm drainage facilities. Construction and operation of the proposed project would not disrupt capacity to existing users. The impact would be less than significant.

c) **Less than Significant Impact.** The proposed project includes rerouting the existing stormwater channel that bisects the site from the northeast to southwest around the equalization basin and modifying the channel to function as a bioswale, following

guidance for stormwater best management practices identified by the California Stormwater Quality Task Force. The stormwater channel traversing the site from east to west along the southern boundary and adjacent to Bockman Canal would be enlarged to accommodate the additional flows resulting from realignment of the other stormwater channel. The new stormwater drainage facilities would assist with compliance of the WWTP with the stormwater requirements of collecting and treating the flows onsite. The swale design would utilize BMPs including gradient and small check dams and provide some level of stormwater treatment. Construction activities would comply with environmental regulations and incorporate environmental protection measures (as discussed in other sections of this chapter) and would not cause significant environmental effects which are not mitigable. The impact would be less than significant.

d) **Less than Significant Impact.** The proposed project would not require new water entitlement, as the project does not propose to increase the water supply demand. The impact would be less than significant.

f, g) **No Impact.** Project-related solid waste would be related soil excavated during project construction activities. The soil would be hauled to the OLSD biosolids drying beds south of the WWTP for permanent stockpiling. The proposed project would not require landfill service and would not affect landfill capacity. The contractor would be required to comply with all pertinent regulations regarding the disposal of solid waste generated by construction activities. No long-term solid waste generation would be associated with proposed project operations. There would be no impact.

Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
18. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) 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)?	☐	☐	☒	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

a) **Less than Significant with Mitigation.** Impact analyses in the sections above show that the proposed project would not significantly degrade the quality of the environment. Potential impacts associated with resources such as increased dust, noise, traffic, biological resources, and hazards would be reduced to less-than-significant levels with implementation of the proposed mitigation measures in the individual sections. Potential impacts identified for biological resources (wetlands and special status plant species, birds, and amphibians) would either be less than significant or mitigated (using Mitigation Measures BIO-1 through BIO-8) to a less-than-significant level, and would not be expected to degrade environmental quality, or substantially reduce the habitat or affect populations of any wildlife, fish, or plant species. It has been determined that construction of the project would not have an impact on any examples of the major periods of California history or prehistory. Mitigation Measure CUL-1 and CUL-2 would be implemented to ensure that any impacts resulting from the incidental discovery of cultural or paleontological resources during construction would be less than significant.

b) **Less than Significant Impact.** Consideration of past, present, and reasonably foreseeable projects in the project area and vicinity indicate that implementation of the proposed project would have a less-than-significant impact. There are no ongoing projects in the immediate project vicinity and none are anticipated in the foreseeable future (City of Leandro, 2013; County of Alameda, 2013).

As discussed in the previous sections, environmental impacts from the proposed project would be limited primarily to short-term effects related to construction. The impacts would

be less than significant or less than signification with mitigation. If projects in the area were to be implemented concurrently with the proposed project, the cumulative impacts could be significant. However, implementation of the mitigation measures identified in this document would reduce the project impacts to a less-than-significant level and would ensure that the proposed project's contribution is less than cumulatively considerable.

c) **Less than Significant Impact.** The impact analysis in this chapter indicates that the proposed project would not have environmental effects that would not cause substantial adverse impacts on human beings. Regulatory compliance and implementation of protective measures as part of the proposed project would ensure that the impacts would be minimal. The impact would be less than significant.

References

City of Leandro, 2013. Project Updates. Available online at http://www.sanleandro.org/depts/cd/projects/default.asp, accessed on September 30, 2013.

County of Alameda, 2013. Current Development Project. Available online at http://www.acgov.org/cda/planning/landuseprojects/currentprojects.htm accessed on September 30, 2013.

CHAPTER 3
Mitigation Measures and Mitigation Monitoring and Reporting Program

This chapter summarizes the mitigation measures that would be integrated into the proposed project to reduce the potentially significant impacts to a less-than-significant level. Also provided is a Mitigation Monitoring and Reporting Program (MMRP) organized in a tabular format, keyed to each mitigation measure incorporated into the project. The tables following each measure provide a breakdown of how the mitigation measure would be implemented, who would be responsible, and when it would occur. The tables consist of four column headings which are defined as follows:

- ***Implementation Procedure*:** If needed, this column provides additional information on how the mitigation measures would be implemented.
- ***Monitoring and Reporting Actions*:** This column contains an outline of the appropriate steps to verify compliance with the mitigation measure.
- ***Monitoring Responsibility*:** This column contains an assignment of responsibility for the monitoring and reporting tasks.
- ***Monitoring Schedule*:** The general schedule for conducting each monitoring and reporting task, identifying where appropriate both the timing and the frequency of the action.

Air Quality

Mitigation Measure AIR-1: Implement BAAQMD Basic Mitigation Measures.

OLSD and/or its construction contractors shall implement the following applicable BAAQMD basic control measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to a maximum of 15 miles per hour.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne

Toxics Control Measure Tile 13, Section 2485 of California of Regulations). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at OLSD regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall require BAAQMD's Basic Construction Measures be included in contractor bid specifications.	1. OLSD reviews contractor bid documents.	1. OLSD	1. Prior to construction.
2. Contractor implements measures in the program.	2. OLSD documents that measures are being implemented.	2. OLSD	2. During construction and final inspection.

Biological Resources

Mitigation Measure BIO-1: Protection of nesting birds.

The OLSD shall implement the following measure:

Project construction activities should avoid the nesting season of February 15 through August 31, if feasible. If seasonal avoidance is infeasible, then no sooner than 30 days prior to the start of any project activity a biologist experienced in conducting nesting bird surveys shall survey the project area and all accessible areas within 500 feet. If nesting birds are identified, the biologist shall implement a suitable protective buffer around the nest and no activities shall occur within this buffered area. Typical buffers are 250 feet for songbirds and 500 feet for raptors, but may be increased or decreased according to site-specific, Project-specific, activity-specific considerations such as visual barriers between the nest and the activity, decibel levels associated with the activity, and the species of nesting bird and its tolerance of the activity. Construction activities that are conducted within a reduced buffer shall be conducted in the presence of a qualified full-time biological monitor. The USFWS and/or CDFW would be consulted if the nesting species is considered special-status outside of the nesting season.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with a qualified biologist to conduct pre-construction surveys for nesting birds.	1. OLSD executes contract.	1. Qualified biologist, County.	1. Prior to construction.
2. OLSD and the appropriate regulatory agency shall establish buffer zones, if active nests are observed.	2. OLSD consults with agency.	2. OLSD, regulatory agency.	2. Prior to construction.
3. OLSD shall include in its contractor specifications that buffer zones will be avoided during construction.	3. OLSD documents that measures are being implemented.	3. OLSD	3. During construction.

Mitigation Measure BIO-2: Remove suitable wetland habitat via non-mechanized means.

The OLSD shall implement the following measure:

a. An agency-approved biologist[1] shall be present during all project related activities that may impact salt marsh harvest mouse or its habitat.

b. Prior to wetland vegetation removal, upland portions of the site will be mowed in accordance with current OLSD operations and maintenance practices for the purpose of removing upland cover and encouraging salt marsh harvest mice to seek cover in the undisturbed southern channel paralleling Bockman Canal, as well as discouraging their escape to all other portions of the pending construction area.

c. Removal of pickleweed, fat hen, and alkali heath vegetation from impacted wetland features shall occur prior to any other construction activities. This will provide an opportunity for the agency-approved biologist to assess the presence of salt marsh harvest mouse on the site, to assess what other areas of the project site they may escape to, and to allow salt marsh harvest mice an opportunity to escape to suitable habitat in the southern channel paralleling Bockman Canal.

d. All pickleweed, fat hen, and alkali heath vegetation in wetland features shall be removed in 1-square foot or smaller sections with non-mechanized tools under the supervision of an agency-approved biologist.

e. Pickleweed, fat hen, alkali heath, and other high-quality native plants shall be stored onsite in a healthy condition and used to replant created wetlands.

[1] The "agency"-approved biologist would be approved by USFWS and CDFW, the federal and state regulatory agencies responsible for implementing endangered species acts, and/or state regulations applicable to Fully-Protected Species.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with a qualified biologist to be present during construction activities related to salt marsh harvest mouse or its habitat.	1. OLSD executes contract.	1. OLSD	1. Prior to construction.
2. Contractor shall implement required measures.	2. Periodic inspections during construction along the drainage ditch. Sign-off by OLSD that measures are being implemented.	2. OLSD	2. During construction.

Mitigation Measure BIO-3: Install silt fencing around undisturbed suitable habitat.

The OLSD shall implement the following measure:

a. An agency-approved biologist[1] shall be present during all project related activities that may impact salt marsh harvest mouse or its habitat.

b. After vegetation is removed from all impacted pickleweed areas, 48-inch silt exclusion fencing with wire-mesh backing shall be installed by hand along the southern channel paralleling Bockman Canal to prevent salt marsh harvest mice from entering the active work area, to protect habitat within the channel from earthmoving activities or accidental spills, and to exclude workers from the channel.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with a qualified biologist to be present during construction activities related to salt marsh harvest mouse or its habitat.	1. OLSD executes contract.	1. OLSD	1. Prior to construction.
2. Contractor shall implement required measures.	2. Periodic inspections during construction along the drainage ditch. Sign-off by OLSD that measures are being implemented.	2. OLSD	2. During construction.

Mitigation Measure BIO-4: Implement avoidance measures during project construction.

The OLSD shall implement the following measure:

a. An agency-approved biologist[1] shall be present during all project related activities that may impact salt marsh harvest mouse or its habitat.

b. Prior to construction, all construction workers shall take part in an agency-approved worker environmental awareness program conducted by the agency-approved biologist. The biologist shall train work crews in standard procedures for identifying and avoiding impacts to salt marsh harvest mouse. The awareness program will be conducted at the start of construction and thereafter as required for new construction personnel.

c. If a salt marsh harvest mouse is observed in or near the project area, all construction shall cease until the salt marsh harvest mouse is captured by a Service-approved biologist possessing the appropriate permits and relocated to other suitable habitat on the project site in accordance with a pre-approved Sensitive Species Relocation Plan (SSRP).

    1. A SSRP shall be submitted to and approved by the Service and CDFW prior to the commencement of any project activities.

f. All work in the project area shall cease immediately if a salt marsh harvest mouse is observed by any employee or the biological monitor.

g. The area beneath vehicles or equipment parked in the project area shall be checked for the presence of salt marsh harvest mouse before being moved, during construction in the roadway, and during movement of staging materials within the entire project site.

h. Vehicle speed limits on the project site shall not exceed 10 miles per hour.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with a qualified biologist to be present during construction activities related to salt marsh harvest mouse or its habitat.	1. OLSD executes contract.	1. OLSD	1. Prior to construction.
2. Conduct awareness training for construction personnel.	2. Sign-off on inspection report and/ or MMRP.	2. OLSD	2. Prior to construction.
3. Contractor shall implement required measures.	3. Periodic inspections during construction along the drainage ditch. Sign-off by OLSD that measures are being implemented.	3. OLSD	3. During construction.

Mitigation Measure BIO-5: Compensate for impacts to suitable wetland and upland habitat.

The OLSD shall implement the following measure:

a. To compensate for the loss of 0.67 acre of suitable wetland habitat and 5.58 acres of unsuitable to low-quality upland habitat, 1.48 acres of onsite wetland habitat will be created around the ecotone berm, and 2.88 acres of onsite native upland habitat will be created on the wetland margins, the ecotone slope, and interior and exterior basin berms.

   1. This will result in an approximate 3:1 onsite replacement of wetland habitat. The 1.48 acres of saline wetland shall be dominated by dense pickleweed, alkali heath, fat hen and other native halophytes favored by salt marsh harvest mouse.
   2. The following activities will constitute an equivalent 3:1 replacement for impacts on existing upland habitat that is of no or severely degraded habitat value to salt marsh harvest mouse:
      i. Creation onsite of 2.88 acres of high-quality native upland and marsh-transition habitat, with a predominant cover of creeping wild rye (*Leymus triticoides*), sedges (*Carex* sp.), and alkali bulrush.
      ii. Marsh gumplant (*Grindelia stricta*) shall be planted along the north bank/top of bank of the southern tidal channel.
      iii. The following trees will be removed from the project site: 10 eucalyptus trees, one Chinese elm, and approximately 6 olive trees, to eliminate raptor perches and reduce predation pressure on salt marsh harvest mouse.
         - Tree removal shall occur during the non-breeding season for birds. The breeding season is typically considered to be February 15 through August 31, thus tree removal shall occur between September 1 and February 14.
      iv. As part of project operations and maintenance, OLSD will implement red fox and feral cat removal activities will continue by the OLSD as part of their operations and maintenance, to reduce predation pressure on salt marsh harvest mouse.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. Contractor shall implement required measures.	1. Periodic inspections during construction along the drainage ditch. Sign-off by OLSD that measures are being implemented.	1. OLSD	1. During construction.

Mitigation Measure BIO-6: Monitor compensatory wetland and upland habitat areas.

The OLSD shall implement the following measure:

a. Created upland and wetland habitat shall be subject to vegetative success criteria, monitored annually, and maintained for vegetative success for a period of five years. Areas

shall attain a minimum of 70 percent cover after three years with a native plant richness of 90 percent or greater. If the cover and native richness of created wetland and upland habitats are not meeting these goals, OLSD is responsible for additional planting, watering, weeding, eradication of invasive exotics, or any other practice necessary to achieve these requirements.

b. A monitoring report shall be provided to USFWS and CDFW by June 30th of the 5th year, and shall include documentation of percent cover and native richness, and a qualitative assessment of wetland characteristics. The report will also include an overview of the habitat creation effort and photos from stations established in baseline year 1. If success criteria are being met after five years, then no further mitigation is required. If success criteria are not being met, further onsite or offsite mitigation may be required by USFWS and/or CDFW.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. Contractor shall implement required measures.	1. Periodic inspections during construction along the drainage ditch. Sign-off by OLSD that measures are being implemented.	1. OLSD	1. During construction.

Mitigation Measure BIO-7: Survey for Rare Plants and Relocate them Onsite, if encountered.

The OLSD shall implement the following measure:

a. Prior to project implementation, a rare plant survey shall be conducted by a qualified biologist in accordance with CDFW's 2009 Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.

b. If a CRPR species is encountered on the project site, CDFW and the California Native Plant Society (CNPS) shall be notified. The project shall first strive to avoid impacts, then minimize impacts, then compensate for impacts.

    1. If direct impacts can be avoided, potential indirect impacts to the species shall be minimized by clearly marking and delineating the location in the field and encircling the species with protective silt exclusion fencing. Visible signage shall be attached to the silt fencing to instruct workers to stay out of the sensitive rare plant area.

    2. If direct impacts cannot be avoided, the species shall be relocated to appropriate onsite habitat as directed by CDFW and/or CNPS. If relocation to appropriate onsite habitat is not possible until after wetland creation (described in Mitigation Measures BIO-3 and BIO-4), the species shall be potted and kept in good condition until relocation is possible, unless directed otherwise by CDFW and CNPS.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with a qualified biologist to be conduct a rare plant survey.	1. OLSD executes contract.	1. OLSD	1. Prior to construction.
2. Contractor shall implement required measures.	2. Periodic inspections during construction along the drainage ditch. Sign-off by OLSD that measures are being implemented.	2. OLSD	2. During construction.

Mitigation Measure BIO-8: Compensatory Onsite Wetland Mitigation.

The OLSD shall implement the following measure:

a. An agency-approved biologist shall be present during all project-related activities that may impact jurisdictional wetlands and "other waters".

b. Prior to construction, all construction workers shall take part in an agency-approved worker environmental awareness program conducted by the agency-approved biologist. The biologist shall train work crews in standard procedures for identifying and avoiding impacts to wetlands. The awareness program will be conducted at the start of construction and thereafter as required for new construction personnel.

c. The southern tidally-influenced channel shall be protected by installation of silt fencing in accordance with Best Management Practices and Stormwater Pollution Prevention Program (SWPPP) measures described in, Hydrology and Water Quality.

d. Wetlands will be created and enhanced onsite at a minimum 1:1 mitigation ratio or as otherwise directed by the permitting agencies.

e. Created and enhanced wetlands shall be subject to success criteria and monitored annually for a period of five years. Wetland creation shall be considered successful if hydrology and vegetation requirements are met at the end of the five year period. At the end of the five year period, a preliminary delineation of waters shall be conducted in accordance with the Corps' 1987 *Wetland Delineation Manual* and the 2008 *Regional Supplement for the Arid West Region*. A five-year monitoring report shall be provided to USFWS and CDFW by June 30th of the final year, to include wetland data sheets as documentation of hydrology and vegetation. The report will also include an overview of the wetland creation effort and photos from stations established in the salt marsh harvest mouse baseline Year 1 report. Because hydric soils may require many years of saturation before establishing, created wetlands are presumed to eventually meet soil requirements if hydrology and vegetation criteria are met. If hydrology and vegetation success criteria are met after five years, then no further mitigation is required. If success criteria are not being met, further onsite or offsite mitigation may be required by USFWS and/or CDFW.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with a qualified biologist to be present during project-related activities that may impact jurisdictional wetlands and "other waters".	1. OLSD executes contract.	1. OLSD	1. Prior to construction.
2. Conduct awareness training for construction personnel.	2. Sign-off on inspection report and/ or MMRP.	2. OLSD	2. Prior to construction.
3. Implement Best Management Practices	3. Sign-off on inspection report and/ or MMRP. Incorporated into construction specifications.	3. OLSD	3. During Construction.

Cultural Resources

Mitigation Measure CR-1: Inadvertent Discovery of Cultural Resources.

The OLSD shall implement the following measure:

> If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet shall halt and the Oro Loma Sanitary District and the U.S. Army Corps of Engineers shall be notified. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), preservation in place may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the Oro Loma Sanitary District, the U.S. Army Corps of Engineers, and the affiliated Native American tribe(s), if applicable. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology to monitor all ground-disturbing activities.	1. OLSD executes contract.	1. OLSD, qualified archaeologist.	1. Prior to and during construction.
2. OLSD shall review construction specifications to ensure procedures for cultural resources discovery are included.	2. OLSD reviews construction specifications.	2. OLSD	2. Prior to construction.
3. In the event subsurface cultural resources are discovered, construction within 50 feet of the find shall be halted and the qualified archaeologist shall be notified.	3. OLSD shall notify the County of the discovery.	3. OLSD	3. During construction.
4. The archaeologist shall complete a final monitoring report.	4. Archaeologist completes report..	4. Qualified archaeologist.	4. Following construction.

Mitigation Measure CR-2: Inadvertent Discovery of Human Remains.

The OLSD shall implement the following measure:

> In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the Alameda County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) shall be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the Oro Loma Sanitary District and the U.S. Army Corps of Engineers for the appropriate means of treating the human remains and any grave goods.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall retain a Native American monitor to monitor all ground-disturbing activities.	1. OLSD executes contract.	1. OLSD Native American Monitor.	1. Prior to and during construction.
2. OLSD shall review construction specifications to ensure procedures for human remains discovery are included.	2. OLSD reviews construction specifications.	2. OLSD	2. Prior to construction
3. In the event human remains are discovered, construction in the area shall be halted and OLSD shall consult the	3. The contractor shall notify City of the discovery.	3. OLSD	3. During construction

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
County Coroner.			
4. OLSD shall review construction specifications to ensure procedures for human remains discovery are included.	4. OLSD reviews construction specifications.	4. OLSD	4. Prior to construction

Hazards and Hazardous Materials

Mitigation Measure HAZ-1

The OLSD shall implement the following measure:

> Prior to commencement of construction activities, the OLSD shall prepare and implement a Soil Management Plan as approved by the San Francisco Bay Regional Water Quality Control Board. The Soil Management Plan shall be prepared by a qualified environmental consulting firm and shall include protocols for all earthwork activities that might encounter suspected contamination, emergency contact information, and minimum personal protective equipment requirements for onsite construction workers. Any suspected contaminated subsurface materials shall be segregated, covered, and profiled for appropriate offsite disposal in accordance with California Occupational Safety and Health Administration requirements and the receiving facilities requirements. The San Francisco Bay Regional Water Quality Control Board shall be notified of any suspected contamination and OLSD shall only proceed with earthwork activities following direction from the San Francisco Bay Regional Water Quality Control Board or local Certified Unified Program Agency. Any required further excavation as directed by the overseeing agency shall be completed prior to recommencement of construction.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD includes procedures in the event that contaminated soils are identified in construction specifications.	1. OLSD reviews construction specifications.	1. OLSD	1. Prior to construction.
2. Contractor implements measures in the program.	2. OLSD documents that measures are being implemented.	2. OLSD	2. During construction.

Mitigation Measure HAZ-2: FAA Courtesy Notice

The OLSD shall implement the following measure:

Prior to commencement of construction activities, the OLSD shall provide plans to the FAA for review in accordance with 14 CFR Part 77.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD to prepare an FAA Courtesy Notice.	1. OLSD to document submittal.	1. OLSD	1. Prior to construction.

APPENDIX A
Air Quality Emissions Estimates

Oro Loma Demonstration - Preliminary Design Construction Emissions Summary

Summary of 2014 Criteria Pollutants Emissions

	Average Daily Construction Emissions (pounds/day)			
Emissions Source	**ROG**	**NOx**	**PM10**	**PM2.5**
Onsite Construction - Phase 1	0.23	2.44	0.12	0.11
Offsite Vehicle Trips - Phase 1	0.01	0.09	0.00	0.00
Onsite Construction - Phase 2A	0.60	6.46	0.32	0.29
Offsite Vehicle Trips - Phase 2A	0.01	0.04	0.00	0.00
Onsite Construction - Phase 2B	0.72	7.45	0.38	0.35
Offsite Vehicle Trips - Phase 2B	0.66	21.69	0.40	0.37
Onsite Construction - Phase 3	0.08	0.77	0.04	0.04
Offsite Vehicle Trips - Phase 3	0.00	0.02	0.00	0.00
Onsite Construction - Phase 4	0.16	1.40	0.08	0.08
Offsite Vehicle Trips - Phase 4	0.01	0.03	0.00	0.00
Total (pounds/day)	**2.48**	**40.39**	**1.35**	**1.25**
BAAQMD Significance Threshold	54	54	82	54

Assumes Phases 1 through 4 would occur in 2014, and that Phase 4 would overlap with Phases 2A and 2B, and there would be 55 workdays.

Summary of 2015 Criteria Pollutants Emissions

	Average Daily Construction Emissions (pounds/day)			
Emissions Source	**ROG**	**NOx**	**PM10**	**PM2.5**
Onsite Construction - Phase 5	1.06	11.00	0.57	0.52
Offsite Vehicle Trips - Phase 5	0.94	26.95	0.57	0.52
Onsite Construction - Phase 6	0.33	2.83	0.17	0.15
Offsite Vehicle Trips - Phase 6	0.01	0.05	0.00	0.00
Total (pounds/day)	**2.34**	**40.82**	**1.31**	**1.20**
BAAQMD Significance Threshold	54	54	82	54

Assumes Phase 5 and Phase 6 would occur in 2015, and that there would be 21 workdays.

Summary of 2014 GHG Construction Emissions

	CO2e
Emissions Source	**metric tons/yr**
Onsite Construction - Phase 1	9.40
Offsite Vehicle Trips - Phase 1	1.54
Onsite Construction - Phase 2A	29.21
Offsite Vehicle Trips - Phase 2A	2.81
Onsite Construction - Phase 2B	23.96
Offsite Vehicle Trips - Phase 2B	138.21
Onsite Construction - Phase 3	3.15
Offsite Vehicle Trips - Phase 3	1.23
Onsite Construction - Phase 4	5.91
Offsite Vehicle Trips - Phase 4	1.23
Total (metric tons/year)	**216.66**
BAAQMD Significance Threshold	1,100

Summary of 2015 GHG Construction Emissions

Emissions Source	CO2e metric tons/yr
Onsite Construction - Phase 5	8.50
Offsite Vehicle Trips - Phase 5	45.86
Onsite Construction - Phase 6	2.82
Offsite Vehicle Trips - Phase 6	0.88
Total (metric tons/year)	**58.06**
BAAQMD Significance Threshold	1,100

2014 Off-road Equipment Emissions

Off-road Construction Equipment Criteria Pollutant Emission Factors

Equipment (hp)	Offroad HP Range	Equipment Emission Rates (lb/hour)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	0-50	0.03	0.15	0.01	0.01
Dozer (200 hp)	176-250	0.14	1.47	0.07	0.07
Excavator (260 hp)	251-500	0.07	0.93	0.03	0.03
Front-end Loader (80 hp)	51-120	0.04	0.37	0.03	0.03
Onsite Truck (200 hp)	176-250	0.09	0.97	0.04	0.04
Sheepsfoot Compactor (150 hp)	121-175	0.08	0.89	0.05	0.04
Water Truck (150 hp)	121-175	0.07	0.70	0.04	0.04

Notes: Emission factors are based on CARB's Off-road emissions inventory database (see Off-road Output). A factor of 1.26639 was applied to THC to obtain ROG based on CARB (2000). A factor of 0.92 was applied to PM10 to obtain PM2.5 based on SCAQMD (2006).

Phase 1 Average Daily Onsite Criteria Pollutant Exhaust Emissions

Equipment	Total Hours	Total Emissions (pounds/day)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	68	9.47	100.04	4.93	4.53
Excavator (260 hp)	21	1.41	19.48	0.63	0.58
Front-end Loader (80 hp)	21	0.86	7.87	0.62	0.57
Onsite Truck (200 hp)	21	1.89	20.30	0.88	0.81
Sheepsfoot Compactor (150 hp)	7	0.58	6.23	0.33	0.30
Water Truck (150 hp)	91	6.53	63.54	3.56	3.27
Total Emissions (pounds) =		20.75	217.46	10.93	10.06
Average Daily Emissions (pounds/day)=		0.23	2.44	0.12	0.11

Phase 2A Average Daily Onsite Criteria Pollutant Exhaust Emissions

Equipment	Total Hours	Total Emissions (pounds/day)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	112	15.55	164.17	8.08	7.44
Excavator (260 hp)	112	7.55	103.91	3.35	3.08
Front-end Loader (80 hp)	112	4.58	41.97	3.30	3.03
Onsite Truck (200 hp)	112	10.06	108.27	4.69	4.31
Sheepsfoot Compactor (150 hp)	0	0.00	0.00	0.00	0.00
Water Truck (150 hp)	224	16.08	156.40	8.75	8.05
Total Emissions (pounds) =		53.81	574.71	28.17	25.91
Average Daily Emissions (pounds/day)=		0.60	6.46	0.32	0.29

Phase 2B Average Daily Onsite Criteria Pollutant Exhaust Emissions

Equipment	Total Hours	Total Emissions (pounds/day)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	217	30.12	318.08	15.66	14.41
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	217	17.97	193.09	10.10	9.29
Water Truck (150 hp)	217	15.58	151.51	8.48	7.80
Total Emissions (pounds) =		63.67	662.69	34.24	31.50
Average Daily Emissions (pounds/day)=		0.72	7.45	0.38	0.35

Phase 3 Average Daily Onsite Criteria Pollutant Exhaust Emissions

Equipment	Total Hours	Total Emissions (pounds/day)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	0	0.00	0.00	0.00	0.00
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	0	0.00	0.00	0.00	0.00
Water Truck (150 hp)	98	7.04	68.42	3.83	3.52
Total Emissions (pounds) =		7.04	68.42	3.83	3.52
Average Daily Emissions (pounds/day)=		0.08	0.77	0.04	0.04

Phase 4 Average Daily Onsite Criteria Pollutant Exhaust Emissions

Equipment	Total Hours	Total Emissions (pounds/day)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	147	3.82	21.96	1.68	1.55
Dozer (200 hp)	0	0.00	0.00	0.00	0.00
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	0	0.00	0.00	0.00	0.00
Water Truck (150 hp)	147	10.55	102.64	5.74	5.29
Total Emissions (pounds) =		14.37	124.60	7.43	6.83
Average Daily Emissions (pounds/day)=		0.16	1.40	0.08	0.08

Notes: It is assumed that there would be 89 workdays in 2014. Piping and process work at the WWTP would occur simultaneously with the earthwork for the containment berm and ecotone construction.

GHG Emissions and Fuel Factors for Diesel Equipment

Fuel	CO2 (g/gal)	N2O (g/gal)	CH4 (g/gal)
Diesel Fuel	10,210.00	0.26	0.58
Notes: Emission factors obtained from TCR, 2011, Tables 13.1 and 13.6.			

Equipment Type (hp)	Offroad HP Range	Fuel Consumption (Liter/hr)	Fuel Consumption (gal/hr)
Mini Excavator (30 hp)	0-50	2.98	0.79
Dozer (200 hp)	176-250	16.44	4.34
Excavator (260 hp)	251-500	24.51	6.47
Front-end Loader (80 hp)	51-120	6.04	1.59
Onsite Truck (200 hp)	176-250	15.67	4.13
Sheepsfoot Compactor (150 hp)	121-175	12.36	3.26
Water Truck (150 hp)	121-175	11.82	3.12

Notes: Fuel consumption factors based on on CARB's Off-road emissions inventory database (see Off-road Output).

Phase 1 Onsite GHG Construction Emissions

Equipment	Total Hours	Total Emissions (metric tons)			
		CO2	N2O	CH4	CO2e
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	68	3.02	0.00	0.00	3.05
Excavator (260 hp)	21	1.39	0.00	0.00	1.40
Front-end Loader (80 hp)	21	0.89	0.00	0.00	0.89
Onsite Truck (200 hp)	21	0.89	0.00	0.00	0.89
Sheepsfoot Compactor (150 hp)	7	0.23	0.00	0.00	0.24
Water Truck (150 hp)	91	2.90	0.00	0.00	2.92
Total Construction Exhaust Emissions		9.31	0.00	0.00	9.40

Phase 2A Onsite GHG Construction Emissions

Equipment	Total Hours	Total Emissions (metric tons)			
		CO2	N2O	CH4	CO2e
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	112	4.96	0.00	0.00	5.01
Excavator (260 hp)	112	7.40	0.00	0.00	7.46
Front-end Loader (80 hp)	112	4.73	0.00	0.00	4.77
Onsite Truck (200 hp)	112	4.73	0.00	0.00	4.77
Sheepsfoot Compactor (150 hp)	0	0.00	0.00	0.00	0.00
Water Truck (150 hp)	224	7.14	0.00	0.00	7.20
Total Construction Exhaust Emissions		28.94	0.00	0.00	29.21

Phase 2B Onsite GHG Construction Emissions

Equipment	Total Hours	Total Emissions (metric tons)			
		CO2	N2O	CH4	CO2e
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	217	9.61	0.00	0.00	9.70
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	217	7.22	0.00	0.00	7.29
Water Truck (150 hp)	217	6.91	0.00	0.00	6.97
Total Construction Exhaust Emissions		23.75	0.00	0.00	23.96

Phase 3 Onsite GHG Construction Emissions

Equipment	Total Hours	Total Emissions (metric tons)			
		CO2	N2O	CH4	CO2e
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	0	0.00	0.00	0.00	0.00
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	0	0.00	0.00	0.00	0.00
Water Truck (150 hp)	98	3.12	0.00	0.00	3.15
Total Construction Exhaust Emissions		3.12	0.00	0.00	3.15

Phase 4 Onsite GHG Construction Emissions

Equipment	Total Hours	Total Emissions (metric tons)			
		CO2	N2O	CH4	CO2e
Mini Excavator (30 hp)	147	1.18	0.00	0.00	1.19
Dozer (200 hp)	0	0.00	0.00	0.00	0.00
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	0	0.00	0.00	0.00	0.00
Water Truck (150 hp)	147	4.68	0.00	0.00	4.72
Total Construction Exhaust Emissions		5.86	0.00	0.00	5.91

2014 Off-road Equipment Emissions

Off-road Construction Equipment Criteria Pollutant Emission Factors

Equipment (hp)	Offroad HP Range	Equipment Emission Rates (lb/hour)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	0-50	0.03	0.15	0.01	0.01
Dozer (200 hp)	176-250	0.14	1.47	0.07	0.07
Excavator (260 hp)	251-500	0.07	0.93	0.03	0.03
Front-end Loader (80 hp)	51-120	0.04	0.37	0.03	0.03
Onsite Truck (200 hp)	176-250	0.09	0.97	0.04	0.04
Sheepsfoot Compactor (150 hp)	121-175	0.08	0.89	0.05	0.04
Water Truck (150 hp)	121-175	0.07	0.70	0.04	0.04

Notes: Emission factors are based on CARB's Off-road emissions inventory database (see Off-road Output). A factor of 1.26639 was applied to THC to obtain ROG based on CARB (2000). A factor of 0.92 was applied to PM10 to obtain PM2.5 based on SCAQMD (2006).

Phase 5 Average Daily Onsite Criteria Pollutant Exhaust Emissions

Equipment	Total Hours	Total Emissions (pounds/day)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	77	10.69	112.87	5.56	5.11
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	72	5.98	64.27	3.36	3.09
Water Truck (150 hp)	77	5.53	53.76	3.01	2.77
Total Emissions (pounds) =		22.20	230.90	11.93	10.97
Average Daily Emissions (pounds/day)=		1.06	11.00	0.57	0.52

Phase 6 Average Daily Onsite Criteria Pollutant Exhaust Emissions

Equipment	Total Hours	Total Emissions (pounds/day)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	70	1.82	10.46	0.80	0.74
Dozer (200 hp)	0	0.00	0.00	0.00	0.00
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	0	0.00	0.00	0.00	0.00
Hydroseed Water Truck	70	5.03	48.87	2.74	2.52
Total Emissions (pounds) =		6.84	59.33	3.54	3.25
Average Daily Emissions (pounds/day)=		0.33	2.83	0.17	0.15

GHG Emissions and Fuel Factors for Diesel Equipment

Fuel	CO2 (g/gal)	N2O (g/gal)	CH4 (g/gal)
Diesel Fuel	10,210.00	0.26	0.58
Notes: Emission factors obtained from TCR, 2011, Tables 13.1 and 13.6.			

Equipment Type (hp)	Offroad HP Range	Fuel Consumption (Liter/hr)	Fuel Consumption (gal/hr)
Mini Excavator (30 hp)	0-50	2.98	0.79
Dozer (200 hp)	176-250	16.44	4.34
Excavator (260 hp)	251-500	24.51	6.47
Front-end Loader (80 hp)	51-120	6.04	1.59
Onsite Truck (200 hp)	176-250	15.67	4.13
Sheepsfoot Compactor (150 hp)	121-175	12.36	3.26
Water Truck (150 hp)	121-175	11.82	3.12

database (see Off-road Output).

Phase 5 Onsite GHG Construction Emissions

Equipment	Total Hours	Total Emissions (metric tons)			
		CO2	N2O	CH4	CO2e
Mini Excavator (30 hp)	0	0.00	0.00	0.00	0.00
Dozer (200 hp)	77	3.41	0.00	0.00	3.44
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	77	2.56	0.00	0.00	2.59
Water Truck (150 hp)	77	2.45	0.00	0.00	2.47
Total Construction Exhaust Emissions		8.43	0.00	0.00	8.50

Phase 6 Onsite GHG Construction Emissions

Equipment	Total Hours	Total Emissions (metric tons)			
		CO2	N2O	CH4	CO2e
Mini Excavator (30 hp)	70	0.56	0.00	0.00	0.57
Dozer (200 hp)	0	0.00	0.00	0.00	0.00
Excavator (260 hp)	0	0.00	0.00	0.00	0.00
Front-end Loader (80 hp)	0	0.00	0.00	0.00	0.00
Onsite Truck (200 hp)	0	0.00	0.00	0.00	0.00
Sheepsfoot Compactor (150 hp)	0	0.00	0.00	0.00	0.00
Water Truck (150 hp)	70	2.23	0.00	0.00	2.25
Total Construction Exhaust Emissions		2.79	0.00	0.00	2.82

2014 On-road Criteria Pollutant Emissions

Emission Factors

Vehicle Type	Units	Running Exhaust Emission Factors			
		ROG	NOx	PM10	PM2.5
Light duty truck (LDT2 gas)*	g/mile	0.05	0.25	0.00	0.00
Light duty truck (LDT2 gas)	lb/mile	0.00	0.00	0.00	0.00
Heavy duty truck (T7 diesel)*	g/mile	0.34	11.28	0.21	0.19
Heavy duty truck (T7 diesel)	lb/mile	0.00	0.02	0.00	0.00

* Emission factor obtained online from EMFAC 2011, for the Bay Area, average model years, and average speed.

Phase 1 Worker and Material Delivery/Off-haul Trips Criteria Pollutant Emissions

Vehicle Type	Trips/year	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck (gas)	120	20	0.27	1.32	0.01	0.01
Heavy duty truck (diesel) Fill Delivery	9	30	0.21	6.97	0.13	0.12
Maximim Annual Emissions (pounds/year)			0.48	8.29	0.14	0.13
Average Day Emissions (lbs/day)			0.01	0.09	0.00	0.00

Phase 2A Worker and Material Delivery/Off-haul Trips Criteria Pollutant Emissions

Vehicle Type	Trips/year	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck (gas)	320	20	0.72	3.52	0.03	0.03
Heavy duty truck (diesel) Fill Delivery	0	0	0.00	0.00	0.00	0.00
Maximim Annual Emissions (pounds/year)			0.72	3.52	0.03	0.03
Average Day Emissions (lbs/day)			0.01	0.04	0.00	0.00

Phase 2B Worker and Material Delivery/Off-haul Trips Criteria Pollutant Emissions

Vehicle Type	Trips/year	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck (gas)	310	20	0.70	3.41	0.03	0.03
Heavy duty truck (diesel) Fill Delivery	2,582	30	58.31	1927.44	35.67	32.79
Maximim Annual Emissions (pounds/year)			59.01	1930.85	35.70	32.82
Average Day Emissions (lbs/day)			0.66	21.69	0.40	0.37

Phase 3 Worker and Material Delivery/Off-haul Trips Criteria Pollutant Emissions

Vehicle Type	Trips/year	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck (gas)	140	20	0.32	1.54	0.01	0.01
Heavy duty truck (diesel) Fill Delivery	0	0	0.00	0.00	0.00	0.00
Maximim Annual Emissions (pounds/year)			0.32	1.54	0.01	0.01
Average Day Emissions (lbs/day)			0.00	0.02	0.00	0.00

Phase 4 Worker and Material Delivery/Off-haul Trips Criteria Pollutant Emissions

Vehicle Type	Trips/year	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck (gas)	210	20	0.47	2.31	0.02	0.02
Heavy duty truck (diesel) Fill Delivery	0	0	0.00	0.00	0.00	0.00
Maximim Annual Emissions (pounds/year)			0.47	2.31	0.02	0.02
Average Day Emissions (lbs/day)			0.01	0.03	0.00	0.00

All trips per day are round-trips. The light-duty truck trips represent employee commute trips. Heavy duty truck trips represent offhaul and fill.

On-road GHG Emissions

Emission Factors

Vehicle Type	Running Exhaust Emission Factors (pounds/mile)		
	CO2**	CH4***	N2O***
Light duty truck (gas)	0.9418	0.0001	0.0001
Heavy duty truck (diesel) Fill Delivery	3.8028	0.0001	0.0001

** Emission factor obtained online from EMFAC 2011, for the Bay Area, average model years, and average speed.

*** California Climate Action Registry, General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Tables C.3 and C.6.

Phase 1 Worker and Material Delivery/Off-haul Trips GHG Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck (gas)	120	20	1.03	0.00	0.00	1.06
Heavy duty truck (diesel) Fill Delivery	9	30	0.48	0.00	0.00	0.49
Total (metric tons)	NA	NA	1.51	0.00	0.00	1.54

Phase 2A Worker and Material Delivery/Off-haul Trips GHG Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck (gas)	320	20	2.73	0.00	0.00	2.81
Heavy duty truck (diesel) Fill Delivery	0	0	0.00	0.00	0.00	0.00
Total (metric tons)	NA	NA	2.73	0.00	0.00	2.81

Phase 2B Worker and Material Delivery/Off-haul Trips GHG Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck (gas)	310	20	2.65	0.00	0.00	3.61
Heavy duty truck (diesel) Fill Delivery	2,582	30	133.63	0.00	0.00	134.60
Total (metric tons)	NA	NA	136.28	0.01	0.01	138.21

Phase 3 Worker and Material Delivery/Off-haul Trips GHG Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck (gas)	140	20	1.20	0.00	0.00	1.23
Heavy duty truck (diesel) Fill Delivery	0	0	0.00	0.00	0.00	0.00
Total (metric tons)	NA	NA	1.20	0.00	0.00	1.23

Phase 4 Worker and Material Delivery/Off-haul Trips GHG Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck (gas)	210	20	1.79	0.00	0.00	1.85
Heavy duty truck (diesel) Fill Delivery	0	0	0.00	0.00	0.00	0.00
Total (metric tons)	NA	NA	1.79	0.00	0.00	1.85

All trips per day are round-trips. The light-duty truck trips represent employee commute trips. Heavy duty truck trips represent offhaul and fill.

Notes: 0.907194 metric tons = 1 ton; 2000 pounds = 1 ton.
Global Warming Potential for CH4 = 23; GWP for N2O = 296.

Gasoline emission factors for GHG

0.0563 g CH4/mile (CCAR, 2009)
0.03639 g NO2/mile (CCAR, 2009)

Diesel emission factors for GHG (CCAR, 2009)

0.0048 g CH4/mile (CCAR, 2009)
0.0051 g NO2/mile (CCAR, 2009)

Reference:

California Climate Action Registry, General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Tables C.3 and C.6.

2015 On-road Criteria Pollutant Emissions

Criteria Pollutant EMFAC2011 Emission Factors

Vehicle Type	Units	Running Exhaust Emission Factors			
		ROG	NOx	PM10	PM2.5
Light duty truck (LDT2 gas)*	g/mile	0.05	0.25	0.00	0.00
Light duty truck (LDT2 gas)	lb/mile	0.00	0.00	0.00	0.00
Heavy duty truck (T7 diesel)*	g/mile	0.34	9.85	0.21	0.19
Heavy duty truck (T7 diesel)	lb/mile	0.00	0.02	0.00	0.00

* Emission factor obtained online from EMFAC 2011, for the Bay Area, average model years, and average speed. Nox emission factor for T7 is for calander year 2015.

Phase 5 Worker and Material Delivery/Off-haul Trips Criteria Pollutant Emissions

Vehicle Type	Trips/year	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck (gas)	110	20	0.25	1.21	0.01	0.01
Heavy duty truck (diesel) Fill Delivery	867	30	19.57	564.73	11.97	11.01
Maximim Annual Emissions (pounds/year)			19.82	565.94	11.98	11.02
Average Day Emissions (lbs/day)			0.94	26.95	0.57	0.52

Phase 6 Worker and Material Delivery/Off-haul Trips Criteria Pollutant Emissions

Vehicle Type	Trips/year	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck (gas)	100	20	0.23	1.10	0.01	0.01
Heavy duty truck (diesel) Fill Delivery	0	0	0.00	0.00	0.00	0.00
Maximim Annual Emissions (pounds/year)			0.23	1.10	0.01	0.01
Average Day Emissions (lbs/day)			0.01	0.05	0.00	0.00

On-road GHG Emissions Factors

Vehicle Type	Running Exhaust Emission Factors (pounds/mile)		
	CO2**	CH4***	N2O***
Light duty truck (gas)	0.9418	0.0001	0.0001
Heavy duty truck (diesel) Fill Delivery	3.8028	0.0000	0.0000

** Emission factor obtained online from EMFAC 2011, for the Bay Area, average model years, and average speed.

*** California Climate Action Registry, General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January

Phase 5 Worker and Material Delivery/Off-haul Trips GHG Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck (gas)	110	20	0.94	0.00	0.00	0.97
Heavy duty truck (diesel) Fill Delivery	867	30	44.85	0.00	0.00	44.89
Total (metric tons)	NA	NA	45.79	0.00	0.00	45.86

Phase 6 Worker and Material Delivery/Off-haul Trips GHG Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck (gas)	100	20	0.85	0.00	0.00	0.88
Heavy duty truck (diesel) Fill Delivery	0	0	0.00	0.00	0.00	0.00
Total (metric tons)	NA	NA	0.85	0.00	0.00	0.88

All trips per day are round-trips. The light-duty truck trips represent employee commute trips. Heavy duty truck trips represent offhaul and fill.

Notes: 0.907194 metric tons = 1 ton; 2000 pounds = 1 ton.
Global Warming Potential for CH4 = 23; GWP for N2O = 296.
Gasoline emission factors for GHG

0.0563 g CH4/mile (CCAR, 2009)
0.03639 g NO2/mile (CCAR, 2009)

Diesel emission factors for GHG (CCAR, 2009)

0.0048 g CH4/mile (CCAR, 2009)
0.0051 g NO2/mile (CCAR, 2009)

Reference:

California Climate Action Registry, General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Tables C.3 and C.6.

GHG OPERATIONAL EMISSIONS

Indirect Emissions from Electricity Consumption

GHG	Emission Factor (lb/kWh)	Electricity Consumption kWhr	CO2e* (metric tons)
9.4 MGD Project			
CO2	0.39100	13,070	2.32
CH4	0.00003	13,070	0.00
N20	0.00001	13,070	0.01
		Total =	2.33

Notes: The emission factor for CO2 was obtained from PG&E, 2012. Emission factors for CH4 and N2O are from USEPA, 2012b.

*Global Warming Potential for CH4 = 21; GWP for N2O = 310 (CCAR, 2009).

California Climate Action Registry (CCAR), 2009. General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Tables C.3 and C.6.

Pacific Gas and Electric Company (PG&E), 2011. Greenhouse Gas Emission Factors Info Sheet, last updated April 8, 2011.

USEPA, 2012. eGRID2012 Version 1.0 Year 2009 GHG Annual Output Emission Rates, 2012.

Electricity Demand 2hp, 24 hrs/day

2 hp = 1.492 kW

EMFAC Output

Calendar Year 2014

Vehicle Type	FUEL	MDLYR	SPEED (Miles/hr)	POP (Vehicles)	VMT (Miles/day)	TRIPS (Trips/day)
LDT2	GAS	AllMYr	AllSpeeds	846,663	31,463,268	5,329,805
T7 single construction	DSL	AllMYr	AllSpeeds	2,026.753	149,760.726	0.000

Vehicle Type	FUEL	MDLYR	SPEED (Miles/hr)	ROG_RUNEX (gms/mile)	TOG_RUNEX (gms/mile)	NOX_RUNEX (gms/mile)	CO2_RUNEX (Pavley I+LCFS) (gms/mile)	PM10_RUNEX (gms/mile)
LDT2	GAS	AllMYr	AllSpeeds	0.051	0.072	0.249	427.214	0.002
T7 single construction	DSL	AllMYr	AllSpeeds	0.341	0.389	11.285	1,724.932	0.209

Vehicle Type	FUEL	MDLYR	SPEED (Miles/hr)	PM2_5_RUNEX (gms/mile)	SOX_RUNEX (gms/mile)
LDT2	GAS	AllMYr	AllSpeeds	0.002	0.005
T7 single construction	DSL	AllMYr	AllSpeeds	0.192	0.017

Calendar Year 2015

Vehicle Type	FUEL	MDLYR	SPEED (Miles/hr)	POP (Vehicles)	VMT (Miles/day)	TRIPS (Trips/day)
LDT2	GAS	AllMYr	AllSpeeds	846,663	31,463,268	5,329,805
T7 single construction	DSL	AllMYr	AllSpeeds	2,026.753	149,760.726	0.000

Vehicle Type	FUEL	MDLYR	SPEED (Miles/hr)	ROG_RUNEX (gms/mile)	TOG_RUNEX (gms/mile)	NOX_RUNEX (gms/mile)	CO2_RUNEX (Pavley I+LCFS) (gms/mile)	PM10_RUNEX (gms/mile)
LDT2	GAS	AllMYr	AllSpeeds	0.051	0.072	0.249	427.214	0.002
T7 single construction	DSL	AllMYr	AllSpeeds	0.341	0.389	11.285	1,724.932	0.209

Vehicle Type	FUEL	MDLYR	SPEED (Miles/hr)	PM2_5_RUNEX (gms/mile)	SOX_RUNEX (gms/mile)
LDT2	GAS	AllMYr	AllSpeeds	0.002	0.005
T7 single construction	DSL	AllMYr	AllSpeeds	0.192	0.017

Off-road Output

Calendar Year	Air Basin	Equipment Class	Equipment Type ID	Equipment Type	HorsepowerBin	Scen BSFC	Fuel Consumption (Liter/hr)*	Scen NOx	NOx (lbs/hr)	Scen PM	PM (lbs/hr)	Scen HC	HC (lbs/hr)	Scen Activity
2014	SF	Construction and Mining	14	Excavators	50	1,779,029	2.98	23.83	0.15	1.82	0.01	3.27	0.02	318,972
2014	SF	Construction and Mining	14	Excavators	120	2,310,541	6.05	35.98	0.35	2.68	0.03	2.97	0.03	203,691
2014	SF	Construction and Mining	14	Excavators	175	4,866,640	10.93	68.04	0.57	3.34	0.03	4.71	0.04	237,638
2014	SF	Construction and Mining	14	Excavators	250	6,191,219	16.36	81.23	0.80	2.58	0.03	4.52	0.04	201,924
2014	SF	Construction and Mining	14	Excavators	500	10,272,160	24.51	103.73	0.93	3.34	0.03	5.95	0.05	223,625
2014	SF	Construction and Mining	17	Off-Highway Trucks	50	70,372	2.35	1.14	0.14	0.12	0.01	0.27	0.03	15,996
2014	SF	Construction and Mining	17	Off-Highway Trucks	120	86,375	6.42	1.49	0.41	0.12	0.03	0.15	0.04	7,180
2014	SF	Construction and Mining	17	Off-Highway Trucks	175	1,670,027	11.82	26.31	0.70	1.47	0.04	2.14	0.06	75,368
2014	SF	Construction and Mining	17	Off-Highway Trucks	250	3,424,879	15.67	56.39	0.97	2.44	0.04	4.14	0.07	116,661
2014	SF	Construction and Mining	17	Off-Highway Trucks	500	14,573,581	28.09	203.37	1.47	7.79	0.06	14.11	0.10	276,835
2014	SF	Construction and Mining	18	Other Construction Equipment	50	398,469	3.46	5.94	0.19	0.54	0.02	1.15	0.04	61,368
2014	SF	Construction and Mining	18	Other Construction Equipment	120	1,245,298	6.62	24.87	0.50	1.94	0.04	2.26	0.04	100,413
2014	SF	Construction and Mining	18	Other Construction Equipment	175	679,084	12.36	13.05	0.89	0.68	0.05	0.96	0.07	29,330
2014	SF	Construction and Mining	18	Other Construction Equipment	250	871,160	17.77	14.99	1.15	0.55	0.04	0.87	0.07	26,156
2014	SF	Construction and Mining	18	Other Construction Equipment	500	2,975,160	29.27	40.42	1.49	1.49	0.05	2.41	0.09	54,234
2014	SF	Construction and Mining	23	Rubber Tired Dozers	50	43,892	3.53	0.80	0.24	0.11	0.03	0.29	0.09	6,640
2014	SF	Construction and Mining	23	Rubber Tired Dozers	120	209,478	6.37	5.97	0.68	0.53	0.06	0.64	0.07	17,547
2014	SF	Construction and Mining	23	Rubber Tired Dozers	175	175,429	11.63	5.16	1.28	0.30	0.07	0.42	0.10	8,052
2014	SF	Construction and Mining	23	Rubber Tired Dozers	250	183,001	16.44	4.35	1.47	0.21	0.07	0.33	0.11	5,940
2014	SF	Construction and Mining	23	Rubber Tired Dozers	500	2,095,654	27.84	49.94	2.49	2.33	0.12	3.62	0.18	40,175
2014	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	50	1,497,402	3.02	22.12	0.17	2.01	0.02	4.55	0.03	264,759
2014	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	120	24,194,048	6.04	400.60	0.37	31.47	0.03	34.54	0.03	2,138,108
2014	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	175	4,181,209	10.33	62.34	0.58	3.14	0.03	4.41	0.04	215,948
2014	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	250	2,422,772	14.70	35.92	0.82	1.16	0.03	1.97	0.04	87,972
2014	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	500	3,260,771	23.13	43.92	1.17	1.49	0.04	2.52	0.07	75,243

BSFC: brake-specific fuel consumpion (pounds per year); base emissions are in tons per year; base activity is hours per year.

*Assumes there is 1.874 pounds/liter of diesel

APPENDIX B
California Natural Diversity Database

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (San Leandro (3712262) or Oakland West (3712273) or Newark (3712251))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S3	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	None	G2G3	S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G2?	S2?	1B.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T2	S2	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Atriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
California macrophylla round-leaved filaree	PDGER01070	None	None	G2	S2	1B.1
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chloropyron maritimum ssp. palustre Point Reyes bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2.2	1B.2
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	PDPGN04081	None	None	G2T2	S2.2	1B.2
Chorizanthe robusta var. robusta robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S1	
Circus cyaneus northern harrier	ABNKC11010	None	None	G5	S3	SSC
Danaus plexippus monarch butterfly	IILEPP2010	None	None	G5	S3	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3	FP
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T2	S2	SSC
Gilia capitata ssp. chamissonis blue coast gilia	PDPLM040B3	None	None	G5T2	S2.1	1B.1
Hemizonia congesta ssp. congesta white seaside tarplant	PDAST4R065	None	None	G5T2T3	S2S3	1B.2
Holocarpha macradenia Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T2	S2?	1B.1
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4?	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G4T1	S1	FP
Layia carnosa beach layia	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
Leptosiphon rosaceus rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
Melospiza melodia pusillula Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2?	SSC
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G2G3	S2S3	1B.2
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S2	SSC
Oncorhynchus mykiss irideus steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2Q	S2	
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S3	WL
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	PDBOR0V061	None	None	G3T2Q	S2.2	1B.2
Plagiobothrys glaber hairless popcornflower	PDBOR0V0B0	None	None	GH	SH	1A
Polygonum marinense Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
Rallus longirostris obsoletus California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	FP
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2S3	
Rynchops niger black skimmer	ABNNM14010	None	None	G5	S1S3	SSC
Sanicula maritima adobe sanicle	PDAPI1Z0D0	None	Rare	G2	S2.2	1B.1
Scapanus latimanus parvus Alameda Island mole	AMABB02031	None	None	G5T1Q	S1	SSC
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3?	S2	2B.2
Sorex vagrans halicoetes salt-marsh wandering shrew	AMABA01071	None	None	G5T1	S1	SSC
Spirinchus thaleichthys longfin smelt	AFCHB03010	None	Threatened	G5	S1	SSC
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	FP
Streptanthus albidus ssp. peramoenus most beautiful jewel-flower	PDBRA2G012	None	None	G2T2	S2.2	1B.2
Stuckenia filiformis ssp. alpina slender-leaved pondweed	PMPOT03091	None	None	G5T5	S3	2B.2
Suaeda californica California seablite	PDCHE0P020	Endangered	None	G1	S1	1B.1
Trachusa gummifera San Francisco Bay Area leaf-cutter bee	IIHYM80010	None	None	G1	S1	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2G3	S2S3	

Record Count: 56

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Plant List

7 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 37122F2

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	1B.2	S2	G2T2
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	S3	G4T3T4
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	1B.1	S2	G3T2
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2.2	G4?T2
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	1B.1	S1	G1
Streptanthus albidus ssp. peramoenus	most beautiful jewel-flower	Brassicaceae	annual herb	1B.2	S2.2	G2T2
Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	1B.1	S1	G1

Suggested Citation

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Plant List

8 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 37122E1

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Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	1B.2	S2	G2T2
Atriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	1B.2	S2	G2
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	1B.1	S2	G3T2
Eryngium aristulatum var. hooveri	Hoover's button-celery	Apiaceae	annual / perennial herb	1B.1	S1	G5T1
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	1B.1	S1	G1
Plagiobothrys glaber	hairless popcorn-flower	Boraginaceae	annual herb	1A	SH	GH
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	2B.2	S2	G3?
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	S2	G2

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Search Criteria

Found in Quad 37122G3

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	S2?	G2?
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	1B.2	S2	G2T2
Atriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	1B.2	S2	G2
California macrophylla	round-leaved filaree	Geraniaceae	annual herb	1B.1	S2	G2
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	S3	G4T3T4
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2.2	G4?T2
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	1B.2	S2.2	G2T2
Gilia capitata ssp. chamissonis	blue coast gilia	Polemoniaceae	annual herb	1B.1	S2.1	G5T2
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	1B.1	S1	G1
Horkelia cuneata var. sericea	Kellogg's horkelia	Rosaceae	perennial herb	1B.1	S2?	G4T2
Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
Sanicula maritima	adobe sanicle	Apiaceae	perennial herb	1B.1	S2.2	G2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	S2	G2

Suggested Citation

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

September 12, 2013

Document Number: 130912105307

Natasha Dvorak
Environmental Science Associates
1425 N. McDowell Blvd.
Suite 200
Petaluma , CA 94954

Subject: Species List for Oro Loma Demonstration Project

Dear: Ms. Natasha Dvorak

We are sending this official species list in response to your September 12, 2013 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be December 11, 2013.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found here.

Endangered Species Division

TAKE PRIDE IN AMERICA

These buttons will not appear on your list.

Revise Selection

Print this page

Print species list before going on to letter.

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U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

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Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Eucyclogobius newberryi
tidewater goby (E)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Holocarpha macradenia
Santa Cruz tarplant (T)

Lasthenia conjugens
Contra Costa goldfields (E)

Layia carnosa
beach layia (E)

Suaeda californica
California sea blite (E)

Quads Containing Listed, Proposed or Candidate Species:

SAN LEANDRO (447B)

NEWARK (447D)

OAKLAND WEST (466D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area

may be carried to their habitat by air currents.

- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be December 11, 2013.