

DOS OSOS RESERVOIR REPLACEMENT PROJECT

ORINDA, CALIFORNIA

MITIGATED NEGATIVE DECLARATION



EAST BAY MUNICIPAL UTILITY DISTRICT

May 2017



**NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION
Dos Osos Reservoir Replacement Project**

Project Title: Dos Osos Reservoir Replacement Project (Project)

Lead Agency: East Bay Municipal Utility District (EBMUD)

Project Location: 8 Los Norrabos and 263 El Toyonal, City of Orinda and EBMUD-owned Watershed Land, unincorporated Contra Costa County (immediately contiguous to City of Orinda boundary)

Project Description: EBMUD’s existing 0.24-million-gallon (MG) Dos Osos Reservoir will be replaced with new dual 0.12 MG, steel-bolted reservoirs on EBMUD-owned watershed property approximately 70 feet higher in elevation, 300 feet southwest of the existing Dos Osos Reservoir site in the City of Orinda. A new, 12-inch, inlet-outlet pipeline will be constructed to connect the existing water distribution system to the new dual reservoirs and will be located in an approximately 800-foot-long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs. EBMUD’s existing Dos Osos Pumping Plant, located at 263 El Toyonal, Orinda, is a 0.3-million-gallons-per-day (MGD) pumping plant that will be rehabilitated at the same capacity; however, the Dos Osos Pumping Plant will be upgraded with pump units that can pump to a higher total dynamic head (i.e., pump to a higher elevation) to serve the new dual Dos Osos Reservoirs. Upon construction completion and successful testing of the new facilities, the existing Dos Osos Reservoir will be demolished.

Project Objective: The Project is designed to rehabilitate and replace critical aging water distribution facilities in order to increase both system reliability and operating efficiency.

Schedule: Key milestones for project implementation are summarized as follows:

Complete Environmental Review	May 2017
Develop Bid Construction Documents	2022
Begin Construction	2023
Complete Construction	2024

Environmental Determination: Pursuant to the requirements of the California Environmental Quality Act, an Initial Study was prepared for the Project. Based on the results of the Initial Study, it was determined that project-related construction work could potentially generate environmental impacts to biological resources and geology/soils. Long-term reservoir and pumping plant operation will not generate significant impacts. Proposed mitigations will be implemented into the Project to ensure that the Project will not generate a significant adverse impact on the environment. Based on this assessment, a Mitigated Negative Declaration has been prepared.

Environmental Mitigation: All impacts will be reduced to Less than Significant levels by implementation of proposed mitigation measures.

Public Comment/Review: The Mitigated Negative Declaration is available for review at:

- East Bay Municipal Utility District, 375 11th Street, Oakland, CA 94607
- EBMUD website (www.ebmud.com)
- City of Orinda Library, 26 Orinda Way, Orinda, CA 94563

In accordance with Section 15073 of the California Environmental Quality Act Guidelines, this Mitigated Negative Declaration is available for public review from May 19, 2017 through June 19, 2017. Written comments on this proposed Mitigated Negative Declaration must be received no later than 4:30 p.m. on June 19, 2017. Please address comments to East Bay Municipal Utility District, Chien Wang, Associate Civil Engineer, 375 11th Street, M/S 701, Oakland, California 94607, or email to dososreservoir@ebmud.com.

5-18-2017

Date

Xavier J. Irias

Director of Engineering and Construction

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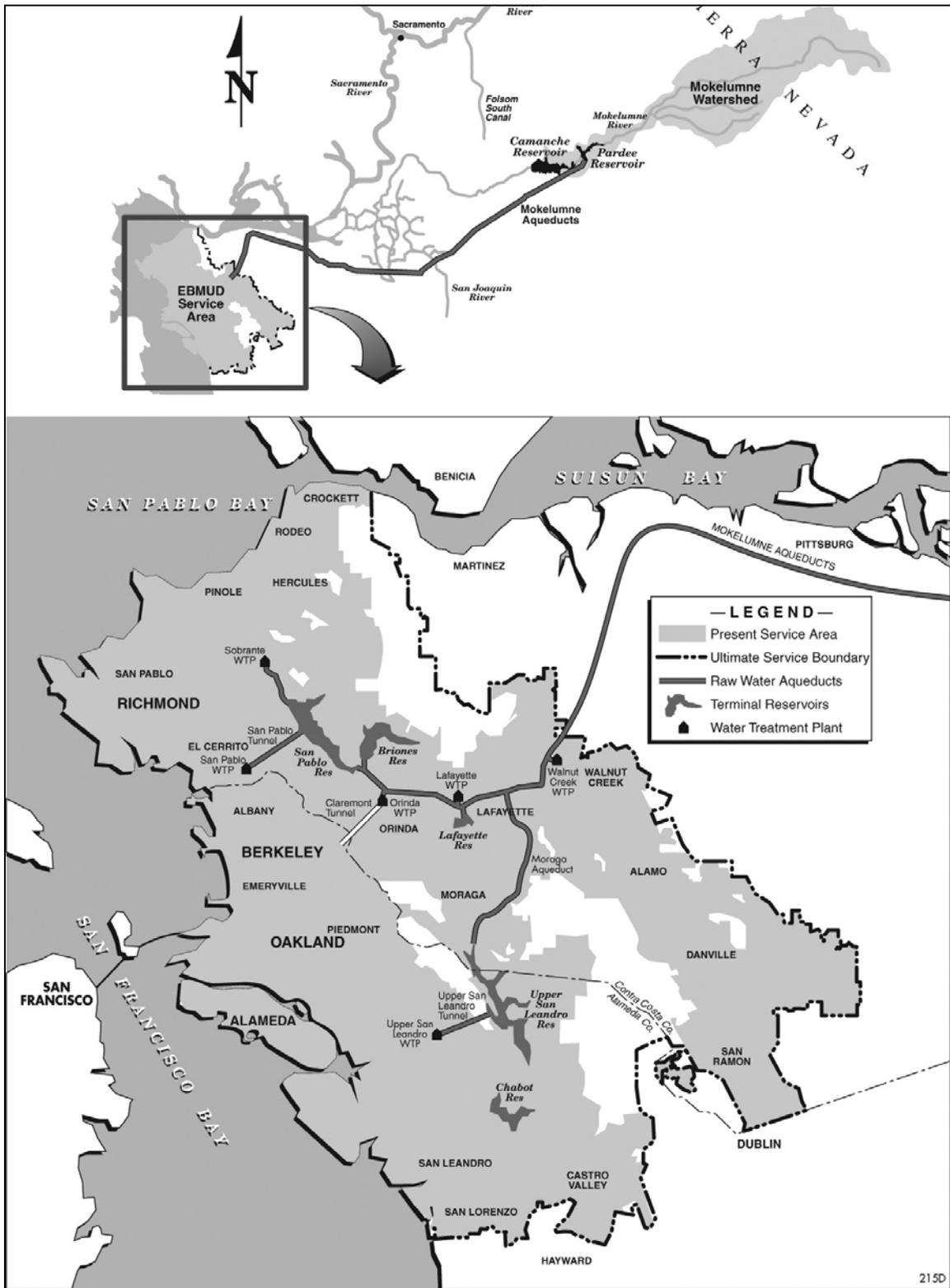
APPENDICES

- A Mitigation Monitoring and Reporting Plan
- B EBMUD Practices and Procedures Monitoring and Reporting Plan

CHAPTER 1

SUMMARY

East Bay Municipal Utility District (EBMUD) provides water service to 20 incorporated cities and 15 unincorporated areas in Alameda and Contra Costa Counties (Figure 1.1). The water distribution system is comprised of six water treatment plants, over 4,200 miles of potable (treated water) distribution and transmission pipes, 175 potable water reservoirs, 130 pumping plants, and numerous accessory structures that altogether provide water service to EBMUD's approximately 1.4 million customers.



East Bay Municipal Utility District Service Area

Figure 1.1 (Source EBMUD)

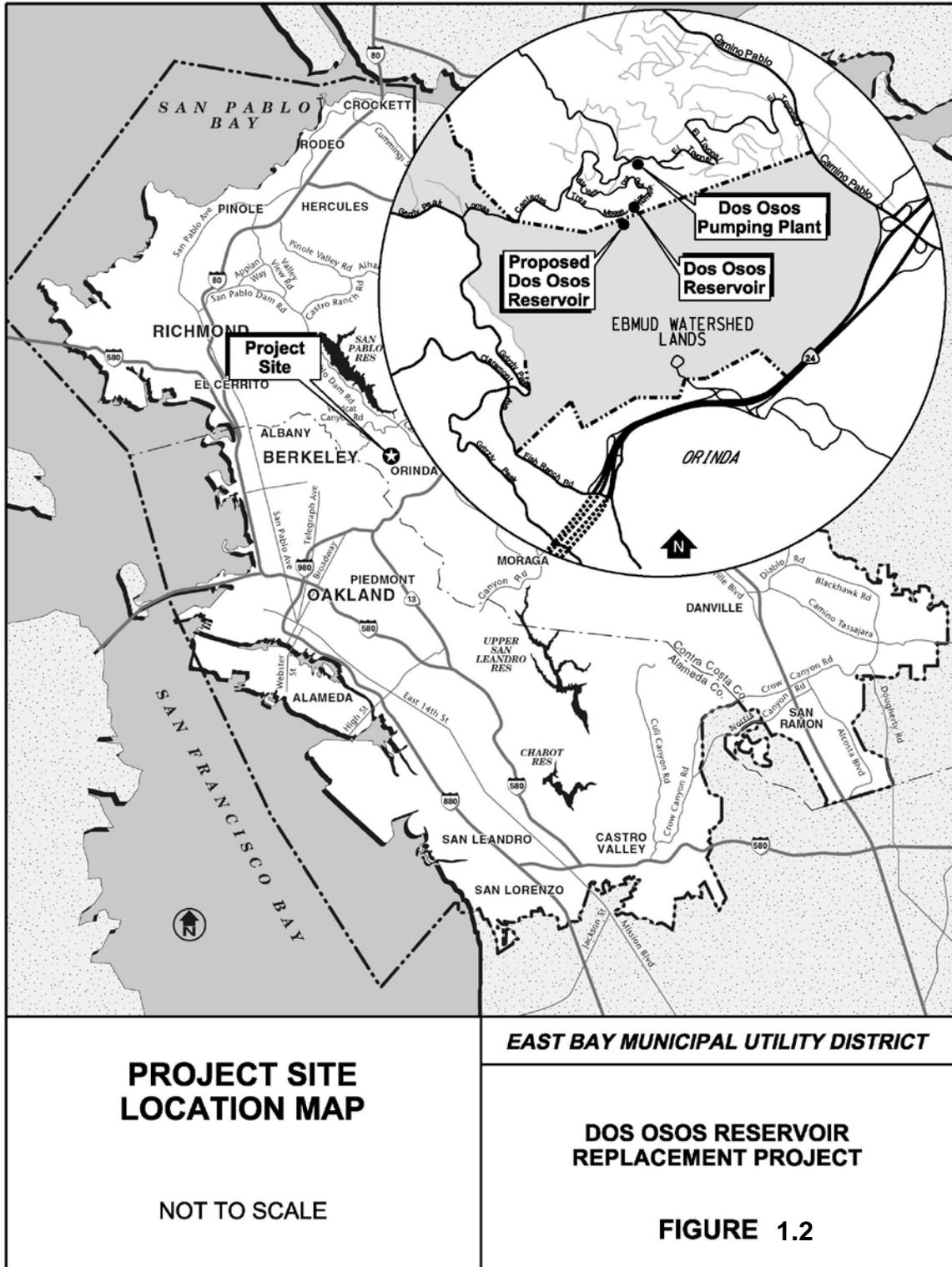
1.1. Project Objective

The Dos Osos Reservoir Replacement Project (Project) includes replacement of EBMUD's existing Dos Osos Reservoir and associated rehabilitation of the Dos Osos Pumping Plant. Both facility projects were detailed as part of a regional study of the Encinal, Westside and Dos Osos Pressure Zones Cascade (Encinal Cascade) (EBMUD 2015) located in the City of Orinda, California, to identify necessary improvements based on the need to rehabilitate and/or replace aging infrastructure, improve water quality operations efficiency by removing excess water storage, and improve domestic and emergency water service reliability.

The Dos Osos Reservoir was evaluated and recommended for rehabilitation in the EBMUD Infrastructure Rehabilitation Plan for Distribution Reservoirs 2012 Update (update to the EBMUD Distribution System Master Plan for Reservoirs, 2008), which documented existing conditions of EBMUD reservoirs and prioritized facility rehabilitations and replacements. The Orinda Fire Flow Comprehensive Engineering Study (EBMUD, 1999) determined that the Dos Osos Reservoir is located too low in elevation resulting in low-pressure areas along Alta Vista and Lomas Cantadas and should be replaced at a higher elevation.

EBMUD's existing 0.24-million-gallon (MG) Dos Osos Reservoir will be replaced with new dual 0.12-MG steel-bolted reservoirs on EBMUD-owned watershed property approximately 70 feet higher in elevation, 300 feet southwest of the existing Dos Osos Reservoir site in the City of Orinda. A new, 12-inch inlet-outlet pipeline will be constructed to connect the existing water distribution system to the new dual reservoirs and will be located in an approximately 800-foot-long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs. EBMUD's existing Dos Osos Pumping Plant, located at 263 El Toyonal, Orinda, is a 0.3-million-gallons-per-day (MGD) pumping plant that will be rehabilitated at the same capacity; however, the Dos Osos Pumping Plant will be upgraded with pump units that can pump to a higher total dynamic head (TDH) to serve the new dual Dos Osos Reservoirs. Upon construction completion and successful testing of the new facilities, the existing Dos Osos Reservoir will be demolished.

Figure 1.2 shows a project vicinity map, including the existing Dos Osos Reservoir, the new dual Dos Osos Reservoirs' location, and the existing Dos Osos Pumping Plant.



Project Vicinity Map
 Figure 1.2

1.2. Purpose of Mitigated Negative Declaration

This Mitigated Negative Declaration (MND) assesses the potential environmental impacts related to the Project proposed by EBMUD and has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines in which EBMUD is the lead agency. EBMUD has incorporated mitigations into the Project to mitigate the potentially significant impacts identified in the Initial Study such that no significant impacts will occur. These mitigations are summarized in the attached Mitigation Monitoring and Reporting Plan (MMRP), see Appendix A.

1.3. Summary of Environmental Considerations

Based on the results of the Initial Study, project-related construction work could potentially generate environmental impacts to biological resources and geology/soils. Mitigation measures incorporated into the Project that will reduce impacts to Less than Significant levels are discussed in Chapter 3 of this MND. Long-term reservoir and pumping plant operation will not generate any significant impacts. EBMUD determined that an MND is the appropriate level of CEQA review for this Project. The mitigations that have been incorporated in the Project are summarized in the attached MMRP.

1.4. List of Referenced Studies by Environmental Topic

Biological Resources – EBMUD, July 2016. Biological Resources Evaluation for the Dos Osos Reservoir Replacement Project. Prepared by EBMUD Fisheries and Wildlife Service Division for the Water Distribution Planning Division.

Noise – EBMUD, January 2017. Dos Osos Reservoir Replacement Project Noise and Vibration Analysis. Prepared by EBMUD Water Distribution Planning Division.

1.5. Circulation of the MND

In accordance with CEQA, a good faith effort has been made by EBMUD during the preparation of the Initial Study and MND to contact affected agencies, organizations and persons who may have an interest in the Project. In reviewing the Initial Study and MND, affected persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and the ways in which the significant effects of the Project were avoided or mitigated.

Comments on the Initial Study and MND may be made in writing before the end of the comment period. A 30-day review and comment period has been established in accordance with §15205(d) of the CEQA Guidelines. Following the close of the public comment period, which ends on June 10, 2017 at 4:30 p.m., EBMUD will consider this Initial Study and MND and comments thereto in determining whether to approve the proposed Project.

The Initial Study and MND are available online on EBMUD's webpage (www.ebmud.com). Written comments should be sent to EBMUD's street address or email address as follows:

Mitigated Negative Declaration
Dos Osos Reservoir Replacement Project

East Bay Municipal Utility District
Chien Wang, Associate Civil Engineer *or*
375 11th Street, M/S 701
Oakland, CA 94607

[dosososreservoir@ebmud.com](mailto:dososreservoir@ebmud.com)

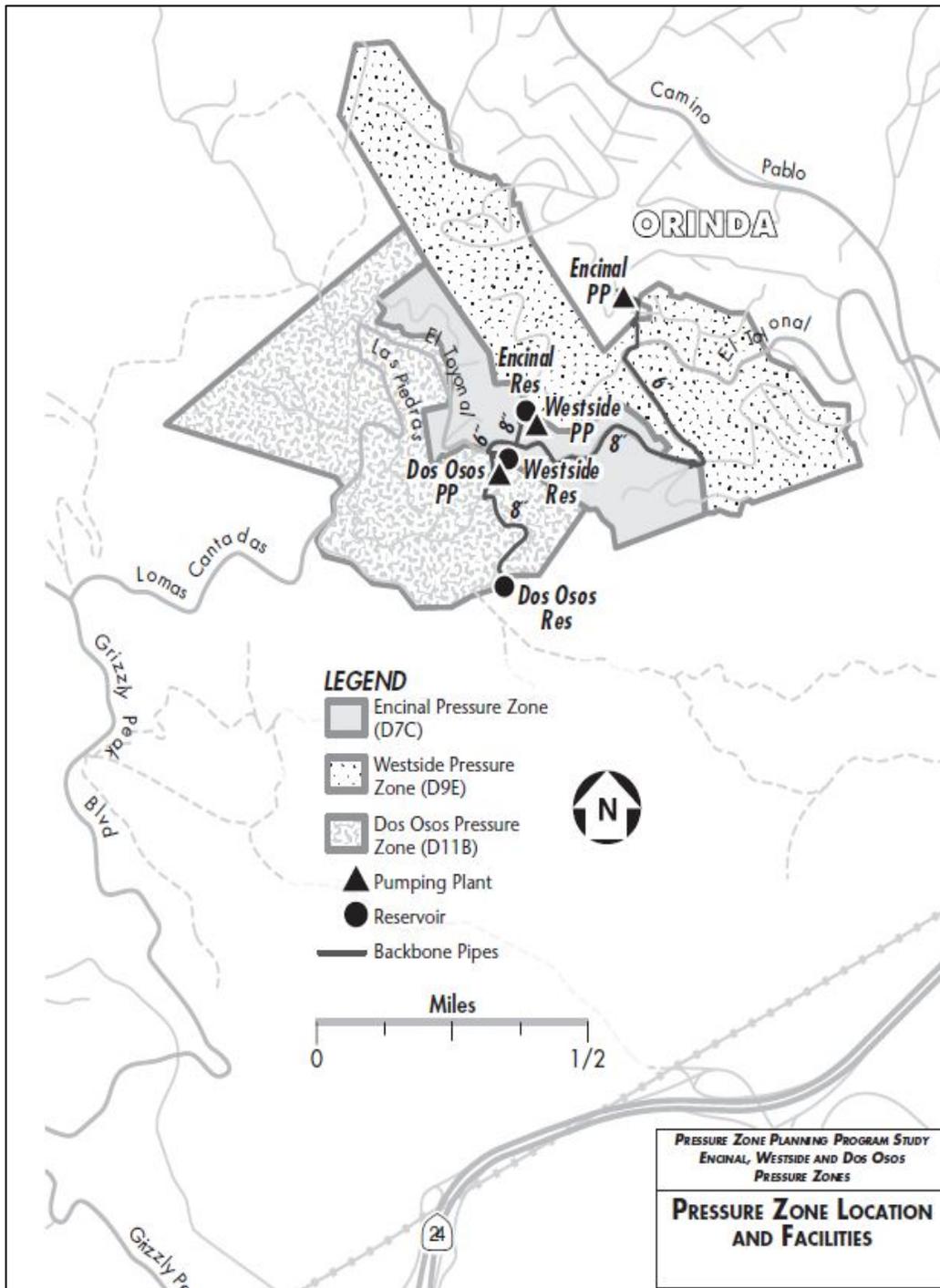
CHAPTER 2

PROJECT DESCRIPTION

2.1. Overview

The Dos Osos Pressure Zone provides water service to customers located between elevations of 1,050 feet and 1,250 feet in the Orinda hills above the Caldecott Tunnel in the City of Orinda, California (Figure 2.1). The Dos Osos Pumping Plant and Dos Osos Reservoir supply water to the Dos Osos Pressure Zone, which extends along El Toyonal, Camino Del Monte, and Las Piedras from Loma Vista Drive in the south to Chaparral Place in the north.

The Dos Osos Pressure Zone is part of the Encinal Cascade which consists of the Encinal Pressure Zone, Westside Pressure Zone and Dos Osos Pressure Zone and lies within the City of Orinda consisting of single-family residential homes on a hilly terrain with moderate to heavy vegetation. Water is supplied to the Encinal Cascade from the Bryant Pressure Zone where water is pumped to the Encinal Reservoir from the Encinal Pumping Plant and then pumped from the Westside Pumping Plant to the Westside Reservoir and then pumped to the Dos Osos Reservoir from the Dos Osos Pumping Plant. The Dos Osos Pressure Zone is at the top of the Encinal Cascade and encompasses the highest elevations of the cascade.



Pressure Zone Location and Facilities

Figure 2.1

Located at 8 Los Norrabos in the City of Orinda, the existing steel-welded Dos Osos Reservoir was built in 1955 and has an operating capacity of 0.24 MG. A comprehensive fire flow study for the City of Orinda (EBMUD, 1999) determined that the Dos Osos Reservoir is located too low in elevation resulting in low-pressure areas along Alta Vista and Lomas Cantadas and should be replaced at a higher elevation. In addition, the reservoir interior and exterior require recoating, and the existing wood roof is deteriorating and requires full replacement.

The existing 0.24-MG Dos Osos Reservoir will be replaced with dual 0.12-MG steel-bolted reservoirs to be located on EBMUD-owned watershed property approximately 70 feet higher in elevation, 300 feet southwest of the existing Dos Osos Reservoir site. A new, 12-inch inlet-outlet pipeline will be constructed to connect the existing water distribution system to the new dual reservoirs and will be located within an approximately 800-foot-long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs. High water age, due to low demand and excess storage, has led to low chlorine residuals in the existing reservoir. Each proposed reservoir will have a remote actuated isolation valve, which will allow for dual tank operation (isolating reservoirs to allow one reservoir to be in use while the second reservoir is offline) to improve reservoir turnover while maintaining fire flow storage.

EBMUD's existing Dos Osos Pumping Plant, located at 263 El Toyonal, Orinda, is a 0.3 MGD pumping plant. The Dos Osos Pumping Plant is a critical facility and is the only source of water for the Dos Osos Pressure Zone. The existing Dos Osos Pumping Plant will be rehabilitated at the same capacity; however, the Dos Osos Pumping Plant will be upgraded with pump units that can pump to a higher TDH to the new dual Dos Osos Reservoirs located approximately 70 feet higher in elevation.

Figure 1.2 shows a project vicinity map, including the existing Dos Osos Reservoir, the new dual Dos Osos Reservoirs' location, and the existing Dos Osos Pumping Plant.

Upon construction completion and successful testing (water quality and operations inspections) of the new facilities, the existing Dos Osos Reservoir, including the valve pit and foundation, will be demolished.

Also, the existing below-ground air valve at Alta Vista and Lomas Cantadas in the Dos Osos Pressure Zone will be replaced with an above-ground slow-venting air valve as part of surge-protection measures in the Dos Osos Pressure Zone.

2.2. Reservoir and Pumping Plant Deficiencies

The Dos Osos Pressure Zone is served by the steel-welded Dos Osos Reservoir (Figure 2.2), which is supplied by the Westside Pressure Zone through the Dos Osos Pumping Plant. The Dos Osos Reservoir is located at the end of Los Norrabos. Constructed in 1955, the Dos Osos Reservoir is approximately 38 feet in diameter and 32 feet high and has an operating capacity of 0.24 MG. The deficiencies of the existing Dos Osos Reservoir include:

- The reservoir is over 60 years old and near the end of its useful life.
- The reservoir is located too low in elevation resulting in low-pressure areas along Alta Vista and Lomas Cantadas.
- High water age, due to low demand, excess storage, and poor water turnover, has led to low chlorine residuals increasing water quality operations.
- During winter demands, the Dos Osos Reservoir is approximately eight times larger than needed, which leads to water quality operational challenges.
- The wooden roof requires replacement, including the wooden and steel roof frame.
- The ladder leading to the roof requires replacement with stairs.
- The tank shell was last recoated in 1997 and requires recoating due to its age and condition.



**Existing Dos Osos Steel-Welded Reservoir at
8 Los Norrabos in Orinda**

Figure 2.2

The existing Dos Osos Pumping Plant is a 0.3 MGD pumping plant (Figure 2.3), constructed in 1968, containing two vertical turbine pump units, both installed in 1968. The Dos Osos Pumping Plant is on the same site as the Westside Reservoir, a steel-bolted tank replaced in 2005. In 2004, a permanent backup regulator (two 2-inch and one 6-inch valves) supplied from the Dos Osos Pressure Zone was installed inside the Dos Osos Pumping Plant to supply the Westside Pressure Zone during the adjacent Westside Reservoir replacement. The backup regulator was closed in 2005 after the Westside Reservoir replacement was completed.

Since the new Dos Osos Reservoirs will be located at a higher elevation, the Dos Osos Pumping Plant units need to be upgraded to accommodate a higher TDH to pump water to the new dual reservoirs. The new pump units will be housed within the existing Dos Osos Pumping Plant building.

The mechanical and electrical equipment within the Dos Osos Pumping Plant is 49 years old and has exceeded its useful life. The deficiencies of the existing Dos Osos Pumping Plant equipment include:

- Inefficient pumps.
- The switchboard and motor control center were installed in 1968; they are obsolete and have no spare parts available.
- Spare parts are difficult to find or non-existent due to the age of the pumping plant equipment.

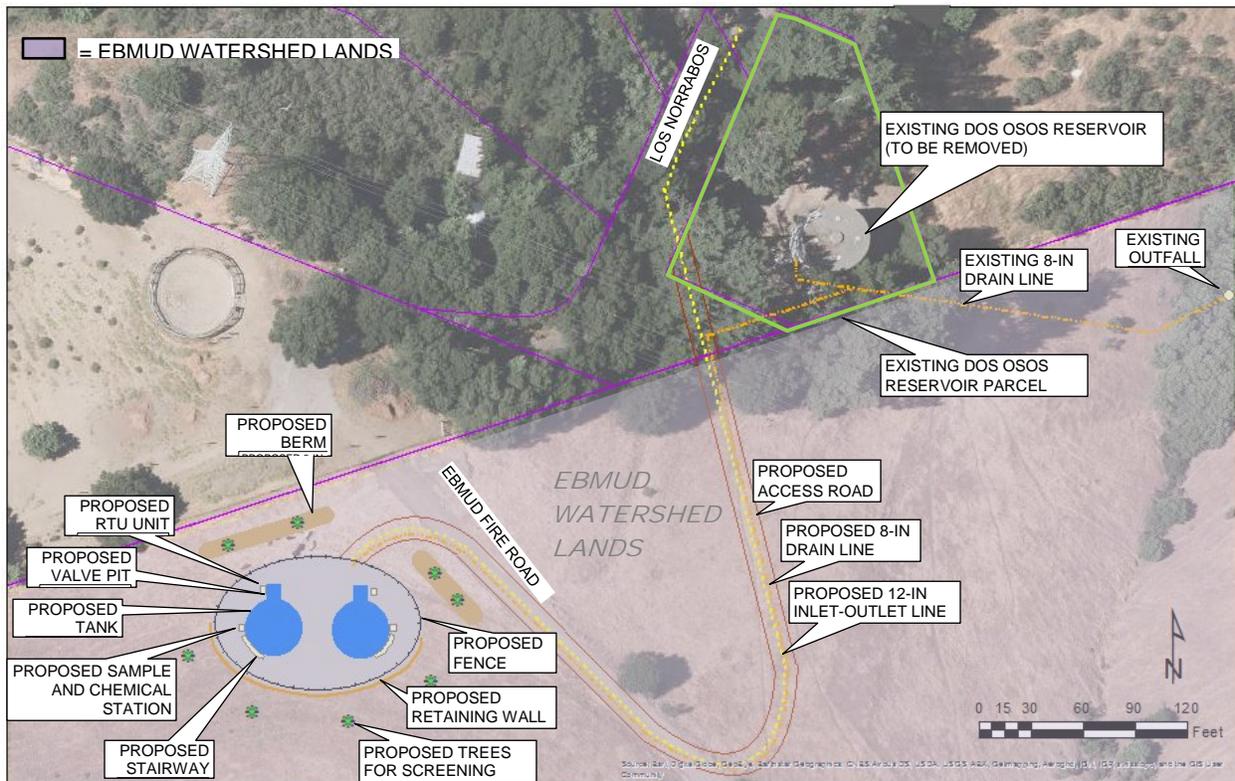


Existing Dos Osos Pumping Plant at 263 El Toyonal in Orinda
Figure 2.3

2.3. Proposed Project

New Dos Osos Dual Reservoirs

To address the reservoir deficiencies noted above, the existing reservoir will be replaced with dual 0.12-MG steel-bolted reservoirs to increase storage turnover (and decrease water age) and to increase operational flexibility. To improve level of service to existing customers, the dual reservoirs will be constructed approximately 70 feet higher in elevation on adjacent EBMUD-owned watershed lands, the Siesta Valley Recreation Area, to provide increased water pressures to the Dos Osos Pressure Zone. The proposed dual reservoirs will be located near the northern boundary of the EBMUD watershed lands parcel, approximately 300 feet southwest of the existing Dos Osos Reservoir. The proposed Project site is located near the intersection of two private roads, Los Norrabos and Tres Mesas, and an EBMUD fire road to the watershed lands. Figure 2.4 shows a conceptual plan depicting major project components at the new dual reservoirs site.



Conceptual Site Plan for Major Improvements at Proposed Dual Reservoirs Site

Figure 2.4

Each new dual steel-bolted reservoir will be approximately 21 feet high with a diameter of about 33 feet and bottom and overflow elevations of approximately 1,399 and 1,420 feet, respectively. The dual reservoirs will be spaced approximately 15 feet apart for maintenance access. Each reservoir will be equipped with an approximately 12-foot by 12-foot valve pit, sample and chemical station, cathodic protection panel (in valve pit), remote telemetry unit (RTU) panel

with associated ten-foot antennas on each roof, stairway and a 42-inch-high fall protection. Each proposed reservoir will have a remote actuated isolation valve, which will allow for dual tank operation (isolating reservoirs to allow one reservoir to be in use while the second reservoir is offline) to improve reservoir turnover while maintaining fire flow storage. The reservoirs will have aluminum dome roofs.

Siting of the proposed dual reservoirs requires excavation of approximately 2,000 cubic yards (CY) of native embankment. The footprint of the dual reservoir site is roughly 6,000 square feet, or 0.13 acres. An approximately 210-foot-long retaining wall will be constructed to retain the hillside behind the dual reservoirs. The retaining wall will have a maximum height of approximately 18 feet. An eight-foot-high, black-vinyl-coated security chain link fence and gate will enclose the dual reservoir site.

The new dual reservoirs will be sited with an orientation (southwest to northeast) that minimizes the reservoir surface area presented to long-distance views to the extent practical – the intent being that only one tank may be visible from afar due to dual tank alignment. The new dual reservoirs' exteriors and roofs will be painted green to blend into the hillside. The proposed excavation will situate the new dual reservoirs into the hillside, resulting in the new dual reservoirs being recessed in, and not protruding from, the hillside. The retaining wall surface will also be designed to minimize contrast with the surrounding hillside.

To provide year-round access to the proposed reservoir location, an approximately 800-foot-long, asphalt concrete access road (with a maximum slope of about 15 percent) will be constructed starting at the private Los Norrabos roadway, continuing uphill from the existing Dos Osos Reservoir entrance. At approximately 100 feet upslope of the existing reservoir entrance, the new access road will turn south just past the Dos Osos Reservoir parcel line to enter EBMUD watershed lands. Once inside watershed lands, the access road will continue southerly upslope before switching back to meet the existing EBMUD fire road where it will follow the fire road for approximately 260 feet before reaching the proposed dual reservoirs site. The access road will be constructed so stormwater runoff will drain to surrounding vegetated hillslopes and infiltrate into native soils. Approximately five trees will need to be removed for the construction of the new access road.

An estimated 800 feet of 12-inch pipeline will connect the dual reservoirs to the existing pipeline in Los Norrabos within the new access road alignment. A new eight-inch overflow pipeline will also run from the dual reservoirs along the access road alignment for approximately 700 feet before turning northeast for 50 feet to connect to the existing Dos Osos Reservoir eight-inch overflow pipeline. The proposed overflow pipeline will connect to the existing Dos Osos Reservoir overflow pipeline at approximately 250 feet above the existing outfall.

Two earthen berms will be constructed to screen the dual reservoirs from the northeastern and northwestern vantage points. The two proposed earthen berms will be a) north of the proposed dual reservoirs site, parallel to the parcel perimeter, to screen views from properties to the north; and b) northeast of the proposed dual reservoirs site, between the new dual reservoirs and the existing fire access road, parallel to the fire access road, to screen long-distance views from

residences on Los Norrabos and viewpoints east of Camino Pablo in the City of Orinda. The berms and the area upslope of the retaining wall will be planted with native trees for screening.

Existing Dos Osos Pumping Plant Rehabilitation

The existing 0.3 MGD Dos Osos Pumping Plant will be rehabilitated at the same capacity; however, the existing 15 HP vertical turbine pumps will be upgraded with pump units that can pump to a higher TDH to the new dual Dos Osos Reservoirs located approximately 70 feet higher in elevation. All electrical and mechanical upgrades to the pumping plant will take place within the existing pumping plant structure. A new antenna for the RTU will be installed on the pumping plant roof (approximately ten feet higher above the existing roof elevation). An electric portable pump with an acoustic enclosure will be temporarily installed at the Dos Osos Pumping Plant site during the rehabilitation and outage of the Dos Osos Pumping Plant. The weatherproof enclosure will measure approximately six feet wide by nine feet long by six feet high and will be located near the existing pumping plant.

The existing backup six-inch pressure-regulating valve inside the Dos Osos Pumping Plant structure will be opened and put into service. This pressure-regulating valve or regulator (known as the Westside Regulator) will be a dedicated emergency valve to provide fire flow to the lower Westside Pressure Zone from the new dual Dos Osos Reservoirs. Figure 2.5 shows the location of the existing Dos Osos Pumping Plant in relation to the proposed dual reservoirs site.



Aerial Photo View of Major Dos Osos Reservoir Replacement Project Components
Figure 2.5

Existing Dos Osos Reservoir Demolition

The existing 0.24-MG Dos Osos Reservoir, located at 8 Los Norrabos, will be demolished upon completion of construction and successful testing of the new dual Dos Osos Reservoirs and Dos Osos Pumping Plant. All steel, roofing, stairs, concrete vaults, concrete foundations, electrical, and mechanical equipment will be removed from the site. Upon completion of all demolition work, the valve pit will be backfilled, and the site will be graded and compacted.

Air Valve Replacement

A hydraulic transient analysis for the Encinal Cascade (EBMUD, 2015) concluded that installation of surge-protection devices throughout the Encinal Cascade network was necessary to protect portions of the Encinal Cascade and its supply pressure zone, Bryant Pressure Zone, from pipe failure and fatigue due to high pressures following an uncontrolled pump shutdown. Within the Dos Osos Pressure Zone, the results show that the initial downsurge could cause cavitation at critical high elevations near the intersection of Alta Vista and Lomas Cantadas in the Dos Osos Pressure Zone. An existing 0.75-inch below-ground air valve exists at this location (Figure 2.6). Because the transient analysis has identified this as a critical location, this air valve will be replaced with an above-ground, 0.75-inch, slow-venting air valve to reliably prevent cavitation.



Existing 0.75-Inch Air Valve at the Intersection of Alta Vista and Lomas Cantadas within the Dos Osos Pressure Zone in Orinda

Figure 2.6

EBMUD Practices and Procedures

EBMUD has incorporated a number of standard construction specifications, standard practices from EBMUD's Environmental Compliance Manual, and Engineering Standard Practices into

the Project. These standard specifications and standard practices are designed to address typical characteristics of EBMUD construction projects and are not project-specific or tailored to the unique characteristics of the Project. These standard specifications and standard practices, which are applicable to all EBMUD projects and reflect generally applicable EBMUD standard operating procedures, are described in more detail below.

EBMUD maintains several Standard Construction Specification documents specifically related to environmental conditions, including:

- 00 31 21.13, Site Survey Information – This section requires the Contractor to provide documentation of both pre- and post-construction pavement conditions in the project vicinity and includes provisions for long-term transportation safety.
- 01 14 11, Work Restrictions– This section describes special requirements and construction constraints (including work hours) that may affect Project construction.
- 01 35 24, Project Safety Requirements – This section includes provisions for the safety of the public and construction workers regarding hazards and hazardous materials.
- 01 35 44, Environmental Requirements – This section includes provisions related to water quality, dust and emissions control, noise and vibration control, hazardous materials control, and protection of biological and cultural resources.
- 01 55 26, Traffic Regulation – This section includes provisions for the regulation of traffic during construction and compliance with applicable traffic regulations requirements.
- 02 82 13, Asbestos Control Activities – This section includes requirements for the handling, removal, and proper disposal of asbestos-containing materials, required as a result of construction activities, and includes provisions for hazardous materials controls.
- 02 83 13, Lead Hazard Control Activities – This section includes requirements for the handling, removal, and proper disposal of lead-containing materials, required as a result of construction activities, and includes provisions for hazardous materials controls.

Section 3.0, Water Quality Protection, and Section 9.0, Trench Spoils Field Management Practices, of EBMUD’s Environmental Compliance Manual include best management practices (BMPs) that have been incorporated into the Project including provisions regarding liquid discharges and trench spoils management.

EBMUD Procedure 711, Hazardous Waste Removal, defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. This procedure outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse, or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and

tracking any hazardous waste handling and disposal requirements and hazardous waste manifests.

EBMUD's Engineering Standard Practice 512.1, Water Main and Services Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements, dictate basic requirements for water pipelines and design standards for pipelines to withstand seismic hazards.

EBMUD's Reservoir Design Guide (2014) establishes minimum requirements to be followed in the design of EBMUD drinking water reservoirs. This guide details design criteria and conditions for above- and below-ground water reservoirs and outlines applicable codes and design standards.

Appendix B contains the table, EBMUD Practices and Procedures Monitoring and Reporting Plan. This table and discussion in the Initial Study detail these practices and procedures and describe their relationship to Project impacts.

2.4. Environmental Setting

The Dos Osos Pressure Zone is located in a hilly region of Orinda above the Caldecott Tunnel at the highest elevation of the El Toyonal neighborhood. It is populated with "semi-rural," low-density, single-family housing and bounded to the south by the open space watershed lands of EBMUD, known as the Siesta Valley Recreation Area. The watershed lands parcel, approximately 980 acres of open space, is roughly bounded by Camino Pablo (east), Grizzly Peak Boulevard and Fish Ranch Road (west), the El Toyonal neighborhood (north) and Highway 24 (south).

The new dual Dos Osos Reservoirs will be located at the northern perimeter of the watershed lands, about 100 feet south of the intersection of two private roads, Los Norrabos and Tres Mesas, which meet just outside the perimeter of the watershed lands. An EBMUD fire access road also exits the watershed lands at this location. The dual reservoirs site will be graded into the hillslopes that face northeast. In contrast to the wooded El Toyonal neighborhood, the watershed lands are open, hilly, grazed annual grassland.

The existing Dos Osos Reservoir is located about 300 feet directly northeast of the proposed reservoirs site on a 0.38-acre parcel at 8 Los Norrabos, roughly 70 feet lower in elevation. The existing reservoir site is surrounded by low-density residential lots and two adjacent vacant irregularly shaped parcels situated on steep slopes. The existing reservoir site and neighboring parcels are heavily canopied by native trees, including coastal live oaks and California bay trees. The existing reservoir is located at the margin of the coast live oak woodland and the annual grassland of the watershed lands.

The existing Dos Osos Pumping Plant site is located approximately 0.6 miles from the existing Dos Osos Reservoir on a 0.5-acre parcel at 263 El Toyonal in the El Toyonal neighborhood of the City of Orinda surrounded by low-density, single-family residences. The Dos Osos Pumping Plant building shares the site with EBMUD's Westside Reservoir, a 0.3 MG, steel-bolted reservoir constructed in 2005. Access to the Dos Osos Pumping Plant is off of El Toyonal at its

intersection with Alta Vista, which is also the only access to the residence at 263 El Toyonal which lies roughly 100 feet beyond the pumping plant along the driveway.

2.5. Construction Characteristics

2.5.1. Construction Access – Construction access routes to both the existing and proposed Dos Osos Reservoir sites and the Dos Osos Pumping Plant will be from Highway 24; from the west via Grizzly Peak Boulevard; or, from the east via Camino Pablo.

2.5.2. Construction Equipment – Equipment anticipated to be used during the Project construction and demolition include: backhoes, excavators, hoe rams, jack hammers, bulldozers, front-end loaders, fork lifts, flatbed delivery trucks, asphalt pavers, vibratory compactors, rollers, street sweeper, water trucks, shotcrete and concrete trucks, high lift crane, various passenger vehicles, electric portable pumps, and truck-mounted equipment for soil nail installation and welding of pipelines. Construction activity, duration, and resulting vehicle trips are listed in Table 2.1.

2.5.3. Staging Area – During the dual reservoirs construction phase, equipment and materials would be staged within the existing reservoir site at 8 Los Norrabos, an EBMUD-owned parcel. As EBMUD watershed lands are graded for the dual reservoirs site, staging may shift to watershed lands as work progresses. All staging during the existing reservoir demolition phase would occur within the existing reservoir parcel.

During the Dos Osos Pumping Plant rehabilitation phase, equipment and materials would be staged onsite at the EBMUD-owned parcel at 263 El Toyonal.

2.5.4. Work Hours – Typical construction hours would occur between 8:00 a.m. and 6:00 p.m., Monday through Friday, with an exception for emergencies. Trucks and personnel can arrive at the site for reporting, minor tasks, and meetings after 7:00 a.m., but construction activity that generates excessive noise would not commence until 8:00 a.m. to prevent disruption to residents on Los Norrabos and El Toyonal. Haul trucks would be allowed on the roadways between 9:00 a.m. and 4:00 p.m. to minimize traffic impacts during peak commute hours. A typical eight-hour workday between Monday and Friday serves as the basis of estimated construction durations in this MND.

TABLE 2.1
Construction Activities Associated with Dos Osos Reservoir Replacement Project*

Construction Phase	Approx. Duration (weeks)	Major Equipment	Haul/ Material Trucks (per day)	Max Hourly One-Way Trips	
				Worker Vehicles	Trucks
Dual Reservoirs Site Excavation					
Mobilization	1	Excavator, Flatbed Trailer, Backhoe, Haul Trucks	2	3	1
Tree Removal	1	Crane, Backhoe, Haul Trucks, Chain Saws	2	8	1
Access Road Grading	2	Excavator, Backhoe, Front-End Loader, Haul Trucks	28	8	8
Reservoir Site Grading	3	Excavator, Backhoe, Front-End Loader, Haul Trucks	28	8	8
Reservoir Foundation and Vault Pit Excavation	1	Excavator, Backhoe, Front-End Loader, Haul Trucks	28	6	8
Dual Reservoirs Site Retaining Wall					
Mobilization: Temporary Shoring	1	Excavator, Crane	2	10	1
Soil Nails	1	Track-mounted Drill Rig, Concrete Pump, Excavator	2	8	1
Shotcrete	1	Excavator, Backhoe, Forklift, Concrete and Shotcrete Trucks	28	6	8
Retaining Wall Drainage	1	Excavator, Front-End Loader, Flatbed Trailer	2	6	1
Cast-In-Place Concrete	1	Excavator, Backhoe, Forklift, Concrete and Shotcrete Trucks	28	8	8
Dual Reservoirs Construction					
Material/Equipment Submittals, Fabrication and Procurement	12				
Reservoir Concrete Foundations	1	Excavator, Backhoe, Forklift, Concrete and Shotcrete Trucks	28	8	8
Reservoir Steel-Bolted Shells	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	2	8	1
Reservoir Roofs	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	2	8	1
Reservoir Appurtenances	2	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	2	8	1
Valve Pits and Appurtenances	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	28	8	8
Inlet-Outlet Line and Miscellaneous Piping	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	28	6	8
Overflow and Drain Lines	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	28	6	8
Asphalt Paving	3	Rollers, Asphalt Paver, Compactor	5	6	2
Site Restoration	1	Excavator, Front-End Loader, Backhoe, Street Sweeper	0	5	0
Reservoir Testing	4		0	4	0

Construction Phase	Approx. Duration (weeks)	Major Equipment	Haul/ Material Trucks (per day)	Max Hourly One-Way Trips Worker	
				Vehicles	Trucks
New Reservoir Site Landscaping and Security					
Berms	3	Excavator, Front-End Loader, Backhoe, Soil Compactor	0	6	0
Landscaping	1	Excavator, Front-End Loader, Material Trucks	2	6	1
Fencing and Gates	1	Forklift	4	3	2
Existing Dos Osos Pumping Plant Rehab					
Material/Equipment Submittals, Fabrication and Procurement	12				
Install Temporary Portable Pump	1	Crane, Forklift, Flatbed Trailer	2	4	1
Remove/Demolish Pumping Plant Equipment	1	Crane, Haul Trucks, Forklift	2	5	1
Install Pumping Plant Equipment	1	Crane, Forklift, Flatbed Trailer	2	5	1
Site Restoration	1	Street Sweeper	0	3	0
Pumping Plant Equipment Testing	10		0	3	0
Existing Dos Osos Steel-Tank Demolition					
Drain Reservoir	1	Water Hog Truck	0	3	0
Demolish/Remove Steel Reservoir Roof, Shell and Appurtenances	2	Crane, Excavator, Chain Saw, Haul Truck	2	5	1
Demolish/Remove Reservoir Foundation and Valve Pit	1	Excavator, Backhoe, Loader, Hoe Ram, Jackhammer, Haul Truck	2	5	1
Backfill Site	1	Excavator, Front-End Loader, Roller, Compactor, Haul Truck	2	4	1
Total Duration (weeks)	77				
MAXIMUM ONE-WAY TRIPS PER HOUR =				10	8
				Vehicles	Trucks

***Notes**

1. Work schedule: eight-hour workday (typical construction hours, Monday-Friday between 8:00 a.m. and 6:00 p.m.)
2. Daily "Haul/Material Trucks" quantities are doubled to calculate daily one-way truck trips. Daily one-way truck/vehicle trips account for trucks/vehicles going to and leaving the Project site on a daily basis.
3. Maximum hourly one-way truck trips are estimated by averaging the number of trucks going to and leaving the job site on a daily basis over a seven-hour period (9:00 a.m. to 4:00 p.m.).
4. Maximum hourly one-way vehicle trips are estimated by assuming all workers are arriving and leaving the job site in a one-hour period expected to occur during a.m. and p.m. peak commute hours.
5. Haul trucks average nine cubic yards (CY) per load; concrete trucks average nine CY per load.
6. Excavation is about 5,400 CY. Backfill is about 400 CY. Assume all required backfill amounts will be obtained from excavated quantities stockpiled on site.
7. Assume that all excess soil excavation will be off-hauled.
8. One worker per vehicle.

2.6. Project Schedule and Cost

The EBMUD Board of Directors will consider adoption and approval of this MND at a regularly scheduled meeting in August 2017. Reservoir and pumping plant design will take about one year followed by solicitation of bids from contractors. Construction is estimated to take about 18 to 24 months, beginning in 2023. The planning-level cost estimate is about \$6 million and includes planning, design, construction, construction management, and inspection costs.

CHAPTER 3

ENVIRONMENTAL ANALYSIS

3.1. Project Information

1. Project Title: Dos Osos Reservoir Replacement Project

2. Lead Agency Name and Address: East Bay Municipal Utility District
Water Distribution Planning Division – MS 701
375 11th Street
Oakland, CA 94607

3. Contact Person: Chien Wang, Associate Civil Engineer
(510) 287-1086

4. Project Location: New dual Dos Osos Reservoirs to be located on EBMUD-owned watershed land in unincorporated Contra Costa County immediately contiguous to City of Orinda boundary just south of the intersection of private roads Tres Mesas and Los Norrabos, Orinda, CA, roughly 300 feet southwest of the existing Dos Osos Reservoir. A new, 12-inch inlet-outlet pipeline and new eight-inch overflow pipeline will be constructed for the new dual reservoirs to be located in an approximately 800-foot-long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs.

Existing Dos Osos Reservoir located at 8 Los Norrabos, Orinda, CA.

Existing Dos Osos Pumping Plant located at 263 El Toyonal, Orinda, CA.

Existing air valve at Alta Vista and Lomas Cantadas, Orinda, CA will be replaced with an above-ground, slow-venting air valve to mitigate potential cavitation.

5. Project Sponsor’s Name and Address: East Bay Municipal Utility District
Water Distribution Planning Division – MS 701
375 11th Street
Oakland, CA 94607

6. General Plan Designation: Dos Osos Pumping Plant and existing Dos Osos Reservoir: City of Orinda – Residential: Low Density

New dual Dos Osos Reservoirs: Contra Costa County – Watershed

7. Zoning: Dos Osos Pumping Plant and existing Dos Osos Reservoir:
RL-20: Residential Low Density – 20,000 square feet

Mitigated Negative Declaration
Dos Osos Reservoir Replacement Project

8. Description of Project: Please see Chapter 2 of the MND.
9. Surrounding Land Uses and Setting: All parcels surrounding the Dos Osos Pumping Plant and existing Dos Osos Reservoir sites are residential, zoned RL-20, Residential Low Density – 20,000 square feet. The Siesta Valley Recreation Area, watershed land owned by EBMUD, is managed as open space, primarily as protection for water quality.
10. Other Public Agencies Whose Approval is Required:
- i) U.S. Fish & Wildlife Service
 - ii) California Department of Fish & Wildlife

3.2. Environmental Factors Potentially Affected

The environmental factors checked below could potentially be affected by this Project, but impacts would be mitigated to a less than significant level as indicated by the checklists on the following pages.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry Resources	<input type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input checked="" type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards/Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input checked="" type="checkbox"/>	Mandatory Findings of Significance

3.3. Environmental Determination

On the basis of this initial evaluation:

- I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that, although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case, because revisions in the Project have been made by or agreed to by the applicant. 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” 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 Environmental Impact Report pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier Environmental Impact Report, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.


Xavier J. Irias, Director of Engineering and Construction

5-18-2017
Date

3.4. Evaluation of Environmental Impacts and Initial Study Checklist

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D) (2017 CEQA Guidelines). In this case, a brief discussion should identify the following:
 - a. Earlier Analysis Used. Identify and state where they are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a. The significance criteria or threshold, if any, used to evaluate each question.
 - b. The mitigation measure identified, if any, to reduce the impact to less than significant.

ENVIRONMENTAL IMPACT CHECKLIST

I. Aesthetics

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including but not limited to, trees, rock outcropping, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

The proposed rehabilitation of the existing Dos Osos Pumping Plant located at 263 El Toyonal consists of replacing existing pump units with new units within the existing pumping plant structure. As such, long-term aesthetic conditions will not change relative to existing conditions. A temporary, electric portable pump will be housed within a weatherproof enclosure (approximately six feet wide by nine feet long by six feet high) to be located near the existing pumping plant. Proposed pumping plant rehabilitation short- and long-term activities will not affect a scenic vista, do not damage any scenic resources within a state scenic highway, will not

degrade the existing visual character of the site and its surroundings, or create a new source of substantial light or glare.

The proposed demolition of the existing Dos Osos Reservoir will result in the complete removal of all existing facilities from the site at 8 Los Norrabos, thereby leaving the site in a more natural state. As such, no impacts to aesthetics will occur at the site of the existing Dos Osos Reservoir.

Discussion of individual potential impacts below focuses on the new dual Dos Osos Reservoirs site on EBMUD watershed lands.

- a. Less than Significant Impact.** The existing Dos Osos Reservoir site and a portion of the new access road lie within a “ridgeline” designation of the Ridgeline and Environmental Preservation Overlay District (City of Orinda General Plan [1987], City of Orinda Title 17 Zoning Ordinance, Chapter 17.5, Ridgeline and Environmental Preservation Overlay District). Identified as an area of great visual importance to the City of Orinda, the ridgeline may be considered a designated scenic vista.

To provide year-round access to the proposed dual reservoirs location, an approximately 800-foot-long asphalt concrete access road (with a maximum slope of approximately 15 percent) will be constructed starting at the private Los Norrabos roadway and continuing uphill from the existing Dos Osos Reservoir parcel. Approximately five trees will need to be removed for the construction of the new access road; however, mature trees on site will be protected and preserved to the extent possible as part of the Project.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.7, Protection of Native and Non-Native Protected Trees, of this standard construction specification includes best practices for protecting trees that are not to be removed within the Project construction limits, including:

- Construction drawings will show locations of trees to be removed and protected.
- Pruning shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture.
- Exclusion fencing shall be erected around trees to be protected.
- No grading, construction, demolition, trenching for irrigation, planting or other work shall occur within the tree protection zone established by the exclusion fencing.
- Any tree injured during construction shall be evaluated as soon as possible by a certified arborist provided by EBMUD and replaced as deemed necessary by the certified arborist.

The Project includes the construction of earthen berms a) north of the proposed dual reservoirs site, parallel to the parcel perimeter; and b) northeast of the proposed dual reservoirs site, between the new dual reservoirs and the existing fire access road, parallel to the fire access road. The earthen berms will be planted with trees that will provide screening

around the dual reservoirs and will protect views from the north and from residences on Los Norrabos and viewpoints east of Camino Pablo in the City of Orinda.

Because Section 3.7, Protection of Native and Non-Native Protected Trees, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and includes provisions for tree protection BMPs, and because earthen berms and planted trees around the dual reservoirs and tree protection measures have been incorporated into the Project, which would screen the new dual reservoirs and protect existing trees, Project impacts related to effects on a scenic vista are less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- b. No Impact.** None of the Project sites are located within a state scenic highway. The Project sites are not visible from California State Highway 24, a designated state scenic highway.
- c. Less than Significant Impact.** The following discussion is based upon field assessments of the viewpoints of the new dual Dos Osos Reservoirs from primary vantage points, at short- and long-distance views.

With locating the new dual Dos Osos Reservoirs to a higher elevation to eliminate existing pressure deficiencies, there is a possibility for the Project to cause aesthetic impacts on the Project site and in the surrounding area. However, due to the remote location of the new dual reservoirs site at the dead end of two private roads in the hills of Orinda, the volume of daily foot and vehicle traffic is low, so the number of potential views at close proximity would be low.

The closest residences are located at 9 Los Norrabos, approximately 340 feet from the dual reservoirs site to the northeast, and 77 Tres Mesas, approximately 700 feet from the site to the northwest. Both residences do not have clear views of the new dual reservoirs site, because they are approximately 50 feet lower in elevation, and views to the new dual reservoirs are further obscured by existing trees that will remain after the Project is completed. However, from the north, an existing horse corral at the top of Tres Mesas has a direct line of sight to the new dual reservoirs site. The residence at 100 Tres Mesas, approximately 2,000 feet higher in elevation and 1,000 feet southwest of the dual reservoirs site, situated off of Tres Mesas roadway at the border between the City of Orinda and EBMUD watershed property, also has a direct line of sight to the new dual reservoirs site.

From farther away to the northwest, residences at 263 and 62 Lomas Cantadas (approximately 100 feet higher in elevation) have partially obscured views of the new dual reservoirs site from roughly 1,500 feet away. These views are obscured by existing trees that will remain after the Project is completed. From the east, residences east of Camino Pablo, greater than a mile away, at 623 and 627 Watchwood Road have indistinct long-distance views of the new dual reservoirs site.

However, as detailed in the Project Description, the new dual reservoirs' orientation, exterior colors, and excavation into the hillslope below existing grades will screen the new dual

reservoirs from short- and long-distance views. Also, the Project includes construction of earthen berms and the planting of trees that will screen the new dual reservoirs from short- and long-distance views. Thus, the Project will not degrade the existing visual character or quality of the site, and the Project impacts are less than significant.

- d. No Impact.** The new dual reservoirs will not introduce new light sources or glare to the site.

II. Agriculture and Forestry Resources

<p>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 Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. -- Would the project:</p>	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51140 (g))	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a. No Impact.** None of the Project sites are designated as prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The existing Dos Osos Pumping Plant site and existing Dos Osos Reservoir site are located on low-density, residential-zoned areas within the City of

Orinda. The new dual Dos Osos Reservoirs site is located on watershed lands owned by EBMUD with open space and watershed management uses.

b. No Impact. None of the Project sites are currently zoned for agricultural use nor are any under a Williamson Act contract for agricultural preservation.

c. No Impact. None of the Project sites are currently zoned for forest land, timberland, or timberland zoned Timberland Production. The existing Dos Osos Pumping Plant site and existing Dos Osos Reservoir site are located on low-density, residential-zoned areas within the City of Orinda. The new dual Dos Osos Reservoirs site is located on watershed lands owned by EBMUD with open space and watershed management uses.

d and e. No Impact. None of the Project sites will involve changes that would result in loss of forest land or conversion of forest land to non-forest use, or conversion of Farmland to non-agricultural use. The Project sites do not occur on forest land or Farmland. The proposed removal of five trees for construction of the access road will not change the existing character of the dual reservoirs site, which is primarily grassland.

III. 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:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

The air quality impact analysis considers both long-term operational and short-term construction impacts associated with the proposed Project. In June 2010, the Bay Area Air Quality Management District (BAAQMD) adopted thresholds of significance, to assist in the review of projects under CEQA, that were designed to establish the level at which BAAQMD air pollution

emissions would cause significant environmental impacts under CEQA. The thresholds were posted on BAAQMD's website and included in the 2011 CEQA Air Quality Guidelines (updated May 2011). EBMUD considers the 2011 BAAQMD significance thresholds adequate to provide a conservative evaluation of a project's potential air quality impacts.

BAAQMD is the regional agency responsible for air quality regulation within the San Francisco Bay Area Air Basin. BAAQMD regulates air quality through its planning and review activities. BAAQMD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits and can impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. BAAQMD regulates new or expanding stationary sources of toxic air contaminants.

- a. No Impact.** The BAAQMD Bay Area 2010 Clean Air Plan (2010 CAP) provides a comprehensive plan to improve Bay Area air quality and protect public health. The 2010 CAP defines a control strategy that BAAQMD and its partners will implement to: (1) reduce emissions and decrease ambient concentrations of harmful pollutants; (2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and (3) reduce greenhouse gas (GHG) emissions to protect the climate.

The Bay Area 2005 Ozone Strategy, prepared by BAAQMD, in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), describes the Bay Area's strategy for compliance with California State one-hour ozone standard planning requirements and how the region will reduce transport of ozone and ozone precursors to neighboring air basins.

Long-Term Operations: The rehabilitated Dos Osos Pumping Plant will continue to be powered by electricity. Thus, the facility will not emit exhaust or fumes during operation of the pumps. There will be no emissions generated by the pumping plant. Also, there will be no emissions generated by the new dual reservoirs, because long-term reservoir operations require only electrical power sources. Therefore, pumping plant and reservoir operational impacts related to air quality plans from the proposed Project would have no impact.

Short-Term Construction: The Project would not conflict with the implementation of the 2010 CAP during the construction phase. General estimated basin-wide, construction-related emissions are included in BAAQMD emission inventory and are not expected to prevent attainment or maintenance of the ozone, particulate matter, and carbon monoxide levels within the Bay Area. Thus, short-term construction of the Project components would have no impact and would not conflict with or obstruct implementation of any applicable air quality plans.

- b. and c. Less than Significant Impact.** Federal and California state ambient air quality standards have been set to protect public health and the climate. "Attainment" status for a pollutant means that BAAQMD meets the standards set by the U.S. Environmental Protection Agency (federal) or California Environmental Protection Agency (state).

Generally, California state standards are more stringent than federal standards. Continuous air monitoring ensures that these standards are met and maintained.

Currently, as measured under both California state and federal standards, the Bay Area Air Basin has non-attainment status for particulate matter and ozone, though standards are exceeded only periodically.

Suspended and Inhalable Particulate Matter (PM10 and PM2.5)

Particulate matter is a class of air pollutants that consists of solid and liquid airborne particles in an extremely small size range. Particulate matter is measured in two size ranges: PM10 for particles less than 10 microns in diameter, and PM2.5 for particles less than 2.5 microns in diameter. Motor vehicles generate about half of Bay Area particulates through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of fine particulates.

Diesel exhaust is a growing concern in the Bay Area and throughout California. The California Air Resources Board (CARB) identified diesel engine particulate matter as a toxic air contaminant. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Many of these toxic compounds adhere to the diesel particles, which are very small and can penetrate deeply into the lungs. Diesel engine particulate matter has been identified as a human carcinogen. Mobile sources such as trucks, buses, and automobiles are some of the primary sources of diesel emissions.

The Bay Area is designated as non-attainment for state standards for both PM10 and PM2.5 and is designated as non-attainment for the national 24-hour fine particulate matter (PM2.5) standard.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NOx). The main sources of ROG and NOx, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. Automobiles are the single largest source of ozone precursors in the Bay Area. Ozone is a regional air pollutant, because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. The Bay Area region is designated as non-attainment for both the one-hour and eight-hour state ozone standards.

Long-Term Operational Air Quality Impacts (No Impact). As stated above in Section a, above, there will be no emissions from the rehabilitated Dos Osos Pumping Plant or the new dual Dos Osos Reservoirs. Thus, pumping plant and reservoir operational impacts related to air quality standards from the proposed Project would have no impact.

Short-Term Construction Air Quality Impacts (Less than Significant Impact).

Construction activities are typically short-term or temporary in duration; however, Project-generated construction emissions could represent a significant impact with respect to air quality and/or global climate change.

Project construction activities can result in fugitive dust, which contributes to particulate matter levels. Sources of fugitive dust emissions could include construction-related activities such as soil disturbance, grading, and material hauling. Construction emissions of fugitive PM10 can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors.

The Project will also result in short-term diesel- and gasoline-powered construction equipment emissions that contain organic gases and oxides of nitrogen, which are considered to be ozone precursors. Sources of exhaust emissions could include on-road haul trucks, delivery trucks, worker commuter motor vehicles, and off-road, heavy-duty equipment.

The BAAQMD 2011 CEQA Air Quality Guidelines include significance criteria for evaluating short-term, construction-phase emissions associated with projects. In accordance with BAAQMD 2011 CEQA Air Quality Guidelines, a project would have a significant construction-related impact if it would cause a new increase in pollutant emissions of ROG exceeding 54 pounds per day (lbs/day), NOx exceeding 54 lbs/day, PM10 exceeding 82 lbs/day, or PM2.5 exceeding 54 lbs/day. BAAQMD does not have a threshold of significance for fugitive dust impacts but instead regards fugitive dust impacts to be mitigated if appropriate management practices are implemented. For construction-phase impacts, BAAQMD recommends implementation of construction mitigation measures to mitigate construction impacts.

EBMUD's approach to the CEQA analyses of construction impacts for the Project is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions. This is appropriate given the small scale of the Project and the limited number of estimated construction truck and vehicle trips (Table 2.1).

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. This specification includes appropriate management practices (including all BAAQMD-recommended practices) that will be implemented as part of the Project.

Section 1.3E of EBMUD's Standard Construction Specification 01 35 44 requires a Dust Control and Monitoring Plan that details the means and methods for controlling and monitoring dust generated by demolition and other work on the site. The specification requires that the plan shall:

- Comply with all applicable regulations including, but not limited to, the BAAQMD Particulate Matter and Visible Emissions Regulation¹ and Public Nuisance Rule.²
- Outline BMPs for preventing dust emissions and provide guidelines for training of employees and procedures to be used during operations and maintenance activities.
- Detail the equipment and methods used to monitor compliance with the plan.

Implementation of Section 1.3E, Dust Control and Monitoring Plan, of Standard Construction Specification 01 35 44 ensures that dust generated by short-term construction activities will be monitored and controlled to minimize short-term construction dust emissions.

Section 1.3I of EBMUD's Standard Construction Specification 01 35 44 requires tuneup logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires:

- Submittal of a log of required tuneups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Implementation of Section 1.3I, Tuneup Logs, of Standard Construction Specification 01 35 44 ensures that construction equipment used at the Project site will be maintained regularly for efficient operation, reducing exhaust emissions to the environment.

Section 3.3B, of EBMUD's Standard Construction Specification 01 35 44 includes provisions for dust control and requires implementation of all necessary dust control measures, including, but not limited to:

- Water and/or coarse rock all dust-generating construction areas as directed by Engineer to reduce the potential for airborne dust from leaving the site.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to:
 - Sweep all paved access roads, parking areas, and staging areas at the construction site daily or as often as necessary.
 - Sweep public roads adjacent to the site at least twice daily or as often as necessary.
- The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Water and/or cover soil stockpiles daily.

¹ BAAQMD Regulation 6, Particulate Matter and Visible Emissions, limits the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions and opacity.

² BAAQMD Regulation 1-301, Public Nuisance, limits air contaminants which cause a public nuisance to any considerable number of persons or the public.

- Site accesses to a distance of 100 feet from the paved road shall be treated with a 12-inch layer of compacted coarse rock.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading.
- All vehicle speeds shall be limited to 15 miles per hour (mph) or less on the construction site and any adjacent unpaved roads.

Implementation of Section 3.3B, Dust Control, of Standard Construction Specification 01 35 44 ensures specified dust control BMPs will be implemented to minimize short-term construction dust emissions.

Section 3.4A of EBMUD's Standard Construction Specification 01 35 44 includes the following provisions for air quality and emissions control:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with CARB or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emission controls such as:
 - Minimize the use of diesel generators where possible.
 - 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 Toxic Control Measure (ATCM), Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
 - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
 - Locate generators at least 100 feet away from adjacent homes.
 - Perform regular low-emission tuneups on all construction equipment, particularly haul trucks and earthwork equipment.

Line power is available at the existing Dos Osos Reservoir site and existing Dos Osos Pumping Plant site; so, electrical power sources will be used as feasible and applicable at

those sites. Also, the temporary portable pump used at the Dos Osos Pumping Plant during construction will be electric, as detailed in the Project Description.

Implementation of Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 ensures specified air emissions control BMPs will be implemented to minimize short-term construction diesel exhaust emissions.

Given the small size of the Project (approximately half-an-acre construction footprint), the limited number of truck and vehicle trips (Table 2.1), and the limited number of pieces of heavy equipment in use at any one time, and because Section 1.3E, Dust Control and Monitoring Plan; Section 1.3I, Tuneup Logs; Section 3.3B, Dust Control; and Section 3.4A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and require a Dust Control and Monitoring Plan, regular maintenance of construction vehicles and equipment, and include provisions for BMPs for dust and air quality emissions control, the Project's air quality impacts related to short-term construction particulate matter impacts and short-term diesel- and gasoline-powered construction equipment emissions will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- d. Less than Significant Impact.** At the existing Dos Osos Pumping Plant, the nearest sensitive receptor is a residence 100 feet from the pumping plant, at approximately the same elevation. However, the exposure of this sensitive receptor to short-term substantial pollutant concentrations will be less than significant, because the pumping plant rehabilitation consists of replacing electrical and mechanical equipment inside the existing pumping plant building and the temporary use of an electric portable pump; so, construction air emissions from construction activities (mainly emissions from construction worker vehicles and material delivery trucks) at this site will be minimal.

The nearest sensitive receptor to the existing Dos Osos Reservoir is a residence at 9 Los Norrabos, 160 feet from the reservoir, across Los Norrabos and approximately 30 feet higher in elevation. At the new dual reservoirs site, the nearest sensitive receptor is the same residence at 9 Los Norrabos, roughly 340 feet from the site, across Los Norrabos and approximately 40 feet lower in elevation than the bottom elevation of the proposed dual reservoirs. Given the distance of the sensitive receptors from the existing Dos Osos Reservoir and new dual Dos Osos Reservoir sites, the exposure of sensitive receptors to substantial pollutant concentrations will be minimal.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 1.3E requires a Dust Control and Monitoring Plan that details the means and methods for controlling and monitoring dust generated by demolition and other work on the site which requires that the plan shall:

- Comply with all applicable regulations, including, but not limited to, the BAAQMD Particulate Matter and Visible Emissions Regulation and Public Nuisance Rule.
- Outline BMPs for preventing dust emissions and provide guidelines for training of employees and procedures to be used during operations and maintenance activities.
- Detail the equipment and methods used to monitor compliance with the plan.

Implementation of Section 1.3E, Dust Control and Monitoring Plan, of Standard Construction Specification 01 35 44 ensures that dust generated by short-term construction activities will be monitored and controlled to minimize exposure of sensitive receptors to substantial dust concentrations.

Section 1.3I of EBMUD's Standard Construction Specification 01 35 44 requires tuneup logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires:

- Submittal of a log of required tuneups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Implementation of Section 1.3I, Tuneup Logs, of Standard Construction Specification 01 35 44 ensures that construction equipment used at the Project site will be maintained regularly for efficient operation, reducing exhaust emissions to the environment that could impact sensitive receptors.

Section 3.3B of EBMUD's Standard Construction Specification 01 35 44 includes provisions for dust control which requires implementation of all necessary dust control measures, including, but not limited to:

- Water and/or coarse rock all dust-generating construction areas as directed by Engineer to reduce the potential for airborne dust from leaving the site.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Using wet power vacuum street sweepers to:
 - Sweep all paved access roads, parking areas, and staging areas at the construction site daily or as often as necessary.
 - Sweep public roads adjacent to the site at least twice daily or as often as necessary.
- The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Water and/or cover soil stockpiles daily.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 12-inch layer of compacted coarse rock.

- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading.
- All vehicle speeds shall be limited to 15 mph or less on the construction site and any adjacent unpaved roads.

Implementation of Section 3.3B, Dust Control, of Standard Construction Specification 01 35 44 also ensures that dust generated by short-term construction activities will be monitored and controlled to minimize exposure of sensitive receptors to substantial dust concentrations.

Section 3.4A of EBMUD's Standard Construction Specification 01 35 44 includes the following provisions for air quality and emissions control:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with CARB or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emission controls such as:
 - Minimize the use of diesel generators where possible.
 - 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 ATCM, Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
 - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
 - Locate generators at least 100 feet away from adjacent homes.
 - Perform regular low-emission tuneups on all construction equipment, particularly haul trucks and earthwork equipment.

Line power is available at the existing Dos Osos Reservoir site and existing Dos Osos Pumping Plant site; so, electrical power sources will be used as feasible and applicable at those sites. Also, the temporary portable pump used at the Dos Osos Pumping Plant during construction will be electric, as detailed in the Project Description.

Implementation of Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 ensures specified air emissions control BMPs will be implemented to minimize short-term construction diesel exhaust emissions that could impact sensitive receptors.

Because Section 1.3E, Dust Control and Monitoring Plan, Section 1.3I, Tuneup Logs, Section 3.3B, Dust Control, and Section 3.4A, Air Quality and Emissions Control, of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and require a Dust Control and Monitoring Plan, include implementation of all BAAQMD-required BMPs for dust control, require regular maintenance of construction vehicles and equipment, and include provisions for BMPs for air emissions control, the Project impacts related to exposure of sensitive receptors to substantial pollutant concentrations will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- e. **Less than Significant Impact.** For the long-term, the rehabilitated pump units will operate within the enclosed Dos Osos Pumping Plant as the existing pump units did under preconstruction conditions. The new dual reservoirs' operation (consisting mainly of water levels changing within the reservoirs) will not generate objectionable odors, and all long-term reservoir operations will be powered by electricity. As such, the rehabilitated pumping plant and new dual reservoirs operations will not generate long-term objectionable odors affecting a substantial number of people.

Short-term construction activities requiring construction equipment and maintenance trucks that emit diesel- and/or gasoline-powered engine exhaust odors may be a potential source of objectionable odors. At the existing Dos Osos Pumping Plant, the short-term generation of objectionable odors will be less than significant, because the pumping plant rehabilitation consists of replacing electrical and mechanical equipment inside the existing pumping plant building and the temporary use of an electric portable pump. For the new and existing reservoir sites, though the distances of the sites from the nearest sensitive receptors and the low densities of residential housing in the surrounding neighborhood will minimize the generation of objectionable odors to a substantial number of people, there is still the potential for residents to be subjected to objectionable odors. However, the restriction of construction activities to daylight work hours and the implementation of the EBMUD standard practices and procedures below would reduce this potential impact to less than significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements.

Section 1.3I of EBMUD's Standard Construction Specification 01 35 44 requires tuneup logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires:

- Submittal of a log of required tuneups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Implementation of Section 1.3I, Tuneup Logs, of Standard Construction Specification 01 35 44 ensures that construction equipment used at the Project site will be maintained regularly for efficient operation, reducing exhaust emissions to the environment that could generate objectionable odors.

Section 3.4A of EBMUD's Standard Construction Specification 01 35 44 includes the following provisions for air quality and emissions control:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, ATCM for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with CARB or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emission controls such as:
 - Minimize the use of diesel generators where possible.
 - 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 ATCM, Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
 - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
 - Locate generators at least 100 feet away from adjacent homes.
 - Perform regular low-emission tuneups on all construction equipment, particularly haul trucks and earthwork equipment.

Line power is available at the existing Dos Osos Reservoir site and existing Dos Osos Pumping Plant site; so, electrical power sources will be used as feasible and applicable at those sites. Also, the temporary portable pump used at the Dos Osos Pumping Plant during construction will be electric, as detailed in the Project Description.

Implementation of Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 ensures specified air emissions control BMPs will be implemented to minimize short-term construction diesel exhaust emissions that could generate objectionable odors.

Because Section 1.3I, Tuneup Logs, and Section 3.4A, Air Quality and Emissions Control, of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and require regular maintenance of construction vehicles and equipment, and include provisions for BMPs for air emissions control, the Project impact related to creation of objectionable odors affecting a substantial number of people will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

IV. Biological Resources

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse impact, 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 Dept. of Fish & Game or U.S. Fish & Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Dept. of Fish & Game or U.S. Fish & Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse impact 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

The biological resources impact analysis is based upon a report titled Dos Osos Reservoir Replacement Project Biological Resources Assessment, prepared by EBMUD biologists (July 2016). The potential for special-status species to occur at the Project sites was evaluated by determining which special-status species occur in the vicinity of the Project sites through a literature and database search. Special-status species included those listed as endangered, threatened, rare, or proposed for listing by U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW). California Native Plant Society (CNPS) plant lists and locally rare plant lists were also reviewed. Database searches for known occurrences of special-status species focused on a five-mile area around the Project sites. The

following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Project sites:

- California Natural Diversity Database (CNDDDB) records
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW)
- Special Animals List (CDFW)
- USFWS Official Species List
- CNPS Electronic Inventory records
- CNPS list of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties
- EBMUD Managed Species Database

In addition, EBMUD biologists conducted field studies at the existing pumping plant site, the existing reservoir site, and the new dual reservoirs site to determine: 1) if plant communities were present within the Project site, 2) if existing conditions provided suitable habitat for any special-status plant or wildlife species, and 3) if sensitive habitats were present. Based on the results of the initial field studies, additional field surveys were conducted at the existing reservoir and new dual reservoirs sites. These additional field surveys included:

- Three botanical surveys by a qualified botanist to determine presence/absence of rare plant species conducted during the bloom times of the potentially occurring rare plant species.
- A habitat assessment conducted by a qualified entomologist to determine the suitability of the sites to support a special-status species snail.

Due to the potential for occurrences of several federally- and state-protected, special-status species within the Project sites, coordination with USFWS and/or CDFW regarding necessary permits will be required. EBMUD will comply with any and all environmental requirements described in conservation plans, agreements, and permits.

- a. Less than Significant Impact with Mitigation Incorporated.** The biological inventory database searches and field studies identified several plant, reptile, bird, mammal and invertebrate special-status species that have at least a moderate potential to occur at the Project sites. The following lists the special-status species by category and details the associated mitigations at the Project sites.

Existing Dos Osos Reservoir and Dos Osos Pumping Plant Sites: The existing Dos Osos Reservoir and Dos Osos Pumping Plant are surrounded by coast live oak woodland habitat; both sites are landscaped and regularly maintained with large portions of the sites consisting of paved surfaces. The existing Dos Osos Reservoir site is bordered by Monterey pines that were planted for screening when the reservoir was originally constructed. Both the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites are characterized by ruderal habitat. Ruderal habitat occurs where native vegetation has been removed by grading or other surface disturbances, and it is characteristic of roadsides and vacant lots. These areas can become recolonized by invasive exotic species, scattered shrubs and trees. Structures within ruderal areas can provide habitat for many native and non-native wildlife species that are adapted to human disturbance. These sites lack unique substrates (e.g., alkaline or serpentine soils) and

micro-habitats (e.g., volcanic rock outcrops, vernal pools, wetlands, etc.) and are surrounded by residential development.

No special-status species were observed at either the existing Dos Osos Pumping Plant or Dos Osos Reservoir sites, but several species have a moderate potential to occur given field conditions surveyed by the biologists and/or the proximity of recorded occurrences. Special-status species with at least a moderate potential to occur at the existing Dos Osos Pumping Plant site are nesting birds and roosting bats. The Alameda whipsnake and dusky-footed woodrat have a low potential to occur at the pumping plant site. Special-status species with at least a moderate potential to occur at the existing Dos Osos Reservoir site are: the dusky-footed woodrat, the Alameda whipsnake, as well as nesting birds and roosting bats.

New Dual Dos Osos Reservoirs Site: The new dual reservoirs site is situated primarily within annual grassland habitat which is open grasslands composed mainly of introduced annual grass species. The grassland is bordered by a coast live oak woodland to the north and east. Oak woodlands are considered vital habitats for the conservation of many bird and mammal species. Coast live oak woodlands may provide migration and dispersal corridors for a variety of wildlife species.

Coyote brush scrub habitat is present in the upland slopes to the west of the new site. Coyote brush scrub is a common and widespread scrub community found along the California coast, coast ranges and Sierra Nevada foothills. Coyote brush scrub is characterized by the presence of coyote brush (*Baccharis pilularis*) and an indistinct assemblage of shrub, sub-shrub and herbaceous understory associates. These scrub types consist of low shrubs up to six feet tall with a well-developed herbaceous or low woody understory. Vegetative cover is usually dense with scattered grassy openings. Stands of coyote brush may transition to forest and woodland habitats or exist as persistent, relatively stable communities. There is a scrub patch adjacent to the site with mature stands of coyote brush with emergent oak and bay trees. Scrub habitat provides habitat for reptiles, cover and foraging habitat for mammals, and foraging and nesting habitat for bird species that are attracted to the scrub canopy.

Table 3.1 shows a list of special-status species for which a) CNDDDB occurrences or EBMUD-managed species database occurrences have been noted within one mile of a Project site, and b) have at least a moderate potential to occur at a Project site based on field studies conducted by EBMUD biologists, or c) they have been observed at a Project site. While all the listed species in Table 3.1 have the potential to occur at the new dual Dos Osos Reservoirs site, a subset of the list has the potential to occur at either the existing Dos Osos Pumping Plant site or the existing Dos Osos Reservoir site. Each special-status species' potential to occur is listed by Project site in the table.

**TABLE 3.1
Special-Status Species That May Occur in the Project Sites**

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/ CNPS ¹	HABITAT	OCCURRENCE POTENTIAL
PLANTS – *While not listed as special-status species, these plant species are identified as "locally rare" within the Orinda region.				
California ponyfoot	<i>Dichondra donelliana</i>	NA/NA/NA* (Locally unusual or significant)*	Coastal prairie and northern coastal scrub communities. Blooms January through March.	New dual Dos Osos Reservoirs site: Observed at the dual reservoirs site during protocol survey. Existing Dos Osos Pumping Plant and Dos Osos Reservoir sites: No potential to occur.
Rayless arnica	<i>Arnica discoidea</i>	NA/NA/NA* (Locally unusual or significant)*	Foothill woodlands, forests and chaparral habitat. Blooms from April to June.	New dual Dos Osos Reservoirs site: Observed at the dual reservoirs site during protocol survey. Existing Dos Osos Pumping Plant and Dos Osos Reservoir sites: No potential to occur.
REPTILES				
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	FT/CT	Inhabits southeast- to southwest-facing slopes and ravines where chaparral or coastal scrub form a vegetative mosaic with oak woodlands and grasses. Uses rock outcrops for refugia. Restricted to the coast ranges between San Francisco Bay and Monterey.	New dual Dos Osos Reservoirs site: High potential to occur. Suitable habitat present. Within designated critical habitat. Twelve occurrences within a one-mile radius of the Project site. Existing Dos Osos Reservoir site: High potential to occur. Existing Dos Osos Pumping Plant site: Low potential to occur.
BIRDS				
Bell's sparrow	<i>Amphispiza belli belli</i>	BCC/WL	Generally prefers semi-open habitats with evenly spaced shrubs one-two meters high. Found in dry chaparral and coastal sage scrub in Contra Costa County.	All sites: Moderate potential to occur. Marginal habitat adjacent to Project sites.

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COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/ CNPS ¹	HABITAT	OCCURRENCE POTENTIAL
Golden eagle	<i>Aquila chrysaetos</i>	BCC/CFP	Found primarily in open hilly or mountainous grasslands and oak savannah. Forages in a variety of habitats including grasslands, chaparral, and oak woodland with abundant mammals. Nests on cliffs, escarpments, and tall trees.	All sites: Moderate potential to occur. Suitable foraging and marginal nesting habitat present.
Short-eared owl	<i>Asio flammeus</i>	BCC/CSC	Found in open areas with low vegetation such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and emergent wetlands. Roosts by day on ground, on low open perch, under low shrub, or in conifers.	All sites: Moderate potential to occur. Suitable foraging habitat on site.
Ferruginous hawk	<i>Buteo regalis</i>	BCC/WL	Occurs in open grasslands, sagebrush flats, desert scrub, low foothills and surrounding valleys, and fringes of pinyon-juniper habitats. In California, the ferruginous hawk is an uncommon winter resident and migrant at lower elevations in the coast ranges.	All sites: Moderate potential to occur. Suitable foraging habitat present.
Swainson's hawk	<i>Buteo swainsoni</i>	BCC/CT	Forages in grasslands, grain fields or livestock pastures adjacent to nesting habitat. Nests in large trees in open areas. Nests typically in solitary trees, bushes, or in small groves along shelterbelts.	All sites: Moderate potential to occur. Suitable foraging habitat present.
White-tailed kite	<i>Elanus leucurus</i>	NA/CFP	Inhabits agricultural areas, low rolling foothills, valley margins with scattered oaks, river flood plains or marshes adjacent to deciduous woodlands. Forages in grasslands and meadows.	All sites: Moderate potential to occur. Suitable foraging habitat present.
Bald eagle	<i>Haliaeetus leucocephalus</i>	BCC/CE	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually found less than two kilometers from water that offers foraging opportunities. Foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	All sites: Moderate potential to occur. Suitable foraging habitat at San Pablo Reservoir.
Loggerhead shrike	<i>Lanius ludovicianus</i>	BCC/CSC	Nests in woodland and scrub habitats at margins of open grasslands. Often uses lookout	All sites: Moderate potential to occur. Suitable foraging habitat on site and

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/ CNPS ¹	HABITAT	OCCURRENCE POTENTIAL
			perches such as fence posts. Found in lowlands and foothills.	nesting habitat adjacent to Project area.
MAMMALS				
Pallid bat	<i>Antrozous pallidus</i>	NA/CSC	Open, dry habitats such as deserts, grasslands, and shrublands with rocky areas for roosting. Roosts in caves, mine tunnels, crevices in rocks, buildings, and trees. Very sensitive to disturbance of roosting sites. Forages in open habitats.	All sites: Moderate potential to occur. Mature trees on site may provide suitable roost habitat.
San Francisco dusky-footed woodrat	<i>Neotoma fuscipes annectens</i>	NA/CSC	Evergreen or live oaks and other dense, thick-leaved trees and shrubs are important habitat components for this species. In riparian areas, highest densities of woodrats and their houses are often encountered in willow thickets with an oak overstory. Nests constructed on the ground or in trees.	New dual Dos Osos Reservoirs site: High potential to occur. Existing Dos Osos Reservoir site: Moderate potential to occur. Suitable habitat present in adjacent oak woodlands and chaparral. No habitat within tank footprint. Existing Dos Osos Pumping Plant site: Low potential to occur.
INVERTEBRATES				
Bridges' coast range shoulderband snail	<i>Helminthoglypta nickliniana bridgesi</i>	NA/NA (Special Animal)	Inhabits open hillsides of Alameda and Contra Costa Counties. Found under rock piles, under tall grasses or weeds and under riparian woody debris.	New dual Dos Osos Reservoirs site: Moderate potential to occur. Open hillsides surrounded by grass and herbaceous vegetation present. Existing Dos Osos Pumping Plant and Dos Osos Reservoir sites: No potential to occur.

¹USFWS Federal Listing Categories:

- FE Federal Endangered
- FT Federal Threatened
- BCC Bird of Conservation Concern

CDFW State Listing Categories:

- CE California Endangered
- CT California Threatened
- CSC California Species of Special Concern
- WL State of the Birds Watch List
- CFP California Fully Protected Animal

NA: Not listed

Special-Status Plants (Less than Significant Impact with Mitigation Incorporated)

No special-status plants have the potential to occur at the existing Dos Osos Pumping Plant or existing Dos Osos Reservoir sites, because both sites are currently paved.

At the new dual Dos Osos Reservoirs site, no federal- or state-listed plant species were found, and no plant species listed in the statewide CNPS rare and endangered plant inventory were found during protocol surveys. Protocol surveys follow specific procedures approved by regulatory agencies for conducting targeted biological surveys. Two plant species considered “locally rare” by the CNPS East Bay Chapter were observed during rare plant protocol surveys. The California ponysfoot and rayless arnica are identified in the Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties database (CNPS East Bay Chapter, 2016). Locally rare species are those species that the scientific community considers sensitive, unique or that occur at the limits of their natural range within a specific region. The California ponysfoot is ranked by the East Bay CNPS chapter as “A1,” which indicates that the species is currently known from two or less regions in Alameda and Contra Costa Counties but is not considered rare statewide. The rayless arnica is ranked as “B,” which indicates that the species is on the East Bay CNPS chapter’s high priority watch list. Plant species ranked as “B” are currently known to be found within six to nine regions within Alameda and Contra Costa Counties. According to the East Bay Chapter’s ranking system, “A1” plants are afforded protection under CEQA, where those listed as “B” are not protected.

Clearing and grubbing, grading and the movement of equipment may impact sensitive plant species at the new dual Dos Osos Reservoirs site. Sensitive plant species include all special-status and rare plants. To mitigate the potential impacts to sensitive plant species, EBMUD will implement Mitigation Measure BIO-1.

Mitigation Measure BIO-1: Implement the following avoidance or minimization measures for sensitive plant species.

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive a CNPS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the sensitive plant species in the Project vicinity, including natural history and habitat, the general protection measures to be implemented to protect the species, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of special-status plant species and destruction or damage of their habitat would be a violation of state and federal law.
- Project boundaries will be delineated and flagged prior to construction by the Contractor. All construction activities will be conducted within the delineated Project boundaries.

- Staging areas and construction access points will be delineated in the field away from sensitive plant species, and all staging will occur within these designated areas.
- In the spring prior to construction, a qualified botanist (EBMUD) will conduct preconstruction sensitive plant surveys in all areas where ground disturbance will occur. Any observed sensitive plant species will be mapped and flagged for avoidance where feasible. EBMUD will notify CDFW or CNPS upon discovery of any sensitive plant species during preconstruction surveys.
- Sensitive plant species will be avoided or minimized by limiting ground disturbance where sensitive plants occur.
- If California ponysfoot or rayless arnica cannot be avoided, EBMUD will salvage the affected plants and transplant them to a similar habitat in the Project vicinity. The re-established population should achieve a 1:1 ratio (transplanted:re-established) after two years. If this performance criterion cannot be met, an in-lieu fee will be paid to the state CNPS program.
- If any additional sensitive plant species are discovered on site that cannot be avoided, the appropriate agencies will be consulted by EBMUD to determine the appropriate species-specific mitigation measures.
- Mitigation for sensitive plant species may include: repairing, rehabilitating or restoring the impacted area; preserving in-situ populations on site; or by providing offsite compensation. Offsite compensation may include the permanent protection of an offsite population through a conservation easement or the purchase of mitigation banking credits at a 1:2 ratio.

Because Mitigation Measure BIO-1 requires EBMUD to conduct preconstruction surveys for sensitive plants, notify appropriate agencies if any sensitive plant species are found, and coordinate with regulatory agencies to comply with appropriate species-specific avoidance and minimization measures, the potential for significant construction-related impacts on sensitive plants will be reduced to less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

Special-Status Amphibians (No Impact)

The one special-status amphibian that has recorded occurrences within a five-mile radius of the Project sites is the California red-legged frog (*Rana draytonii*) (CRLF); however, there are no CNDDB CRLF observations within one mile of the Project sites. The Project sites are outside critical habitat for this species. This species was not observed during the site assessments. CRLFs are present in several other ponds and wetlands within the San Pablo and Briones Watersheds. The CRLF may use San Pablo Creek (approximately 0.9 miles from the new dual reservoirs site) to move between habitats, particularly in the breeding season. Variable flows in San Pablo Creek make the habitat marginal for CRLF breeding, and no CRLFs have been observed in the creek. There is no aquatic habitat at any of the Project sites and limited potential for upland estivation or dispersal at the sites. For these reasons, the CRLF has low potential to occur within the Project sites; therefore, Project construction will have no impact on the CRLF.

Special-Status Reptiles (Less than Significant Impact with Mitigation Incorporated)

The new dual Dos Osos Reservoirs site is within USFWS-designated critical habitat for the Alameda whipsnake (*Masticophis lateralis euryxanthus*), and the existing Dos Osos Reservoir site is directly adjacent to USFWS-designated critical habitat for the Alameda whipsnake. Primary constituent elements for the Alameda whipsnake include: (1) scrub/shrub communities with a mosaic of open and closed canopy, (2) woodland or annual grassland plant communities contiguous to lands containing scrub/shrub communities with a mosaic of open and closed canopy, and (3) lands containing rock outcrops, talus and small mammal burrows within or adjacent to scrub/woodland/grassland communities. The new dual Dos Osos Reservoirs site is located in grassland on a southeasterly aspect within a mosaic of scrub and oak woodlands which has abundant small mammal burrows, and rock outcrops are likely to occur nearby. While no Alameda whipsnakes were observed during field visits to the sites, there have been numerous local occurrences recorded by EBMUD and listed within the CNDDB for the species in the Project vicinity. Also, scrub habitat lays upslope of the new dual Dos Osos Reservoirs site but outside of proposed construction and staging areas; no scrub habitat patches will be impacted by the Project. Due to the location of the new dual Dos Osos Reservoirs site on critical habitat for the Alameda whipsnake, there is high potential for the whipsnake to occur on this site.

While the existing Dos Osos Reservoir site is adjacent to critical habitat for the Alameda whipsnake, this highly disturbed site does not include all the primary constituent elements for the Alameda whipsnake. The existing Dos Osos Reservoir site does include fringe woodland plant communities contiguous to the watershed lands that contain scrub/shrub communities with a mosaic of open and closed canopy. However, the paved footprint of the existing reservoir site is adjacent to scrub habitat and provides suitable basking substrate for the species. Thus, there is a high potential for the whipsnake to occur on the existing Dos Osos Reservoir site.

The Dos Osos Pumping Plant site is situated in a suburban neighborhood surrounded by oak woodlands. The pumping plant site is not within critical habitat and does not include the primary constituent elements for the whipsnake. However, the site is within 1,000 feet of open space land, and whipsnakes may disperse into the neighborhood. Alameda whipsnakes have been observed using paved roadways for basking, and increased traffic to the pumping plant site may increase the likelihood of a vehicular encounter. Since construction activities occurring at the pumping plant site will occur within the existing building and no ground disturbance will occur at the pumping plant site, there is low potential for impacts to the Alameda whipsnake at the Pumping Plant site.

Construction of the new dual Dos Osos Reservoirs and demolition of the existing Dos Osos Reservoir have the potential to take individual snakes if they are present in the area subject to disturbance. Alameda whipsnakes have two seasonal peaks in activity, one during the spring mating season and the other during late summer/early fall. During construction, which is proposed during the active period for Alameda whipsnakes, take could occur during the movement of construction equipment and other vehicles, the removal of vegetation, excavation work, reservoir and retaining wall installation, trenching of pipelines and paving

of surfaces. Also, the construction of the new dual Dos Osos Reservoirs and associated access road on previously undeveloped watershed lands could potentially impact long-term habitat for the Alameda whipsnake. To mitigate potentially significant impacts to Alameda whipsnakes at the new dual Dos Osos Reservoirs site and the existing Dos Osos Reservoir site and the existing Dos Osos Pumping Plant site, EBMUD will implement Mitigation Measure BIO-2.

Mitigation Measure BIO-2: Implement the following avoidance and minimization measures for the Alameda whipsnake:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive USFWS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the Alameda whipsnake, including natural history and habitat, a review of the state and federal listing of the species, the general protection measures to be implemented to protect the Alameda whipsnake, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of listed species and destruction or damage of their habitat would be a violation of state and federal law.
- Habitat restoration work may include replanting or seeding with plant species that were removed during construction and removal activities. All wildlife exclusion fencing, as described in Mitigation Measure BIO-5, and construction-related materials will be removed from the site.
- Seven days and twenty-four hours prior to construction activities, the Project area will be surveyed for Alameda whipsnakes by a qualified biologist (EBMUD). Surveys of the Project area will be repeated if a lapse in construction activity of two weeks or greater occurs.
- Movement of heavy equipment will be confined to existing roadways and the construction work areas defined on Project plans to minimize habitat disturbance.
- Clearing and grubbing of the construction site will be confined to the minimum area necessary to facilitate construction activities.
- If the Alameda whipsnake is observed at the construction site at any time during construction, work will cease immediately until the snake leaves the work area on its own or is relocated outside of the work area by a permit-approved qualified biologist (EBMUD). Any sightings and any incidental take will be reported to the USFWS and CDFW immediately by EBMUD.
- A monitoring report of all activities associated with surveys and mitigation for this species will be submitted to the USFWS and CDFW by EBMUD no later than three months after construction is completed. The monitoring report will describe methods and results of any field survey efforts and mitigation measures implemented before, during or after project construction.

- To mitigate losses to critical habitat area due to construction of the new dual reservoirs, EBMUD will obtain habitat credits for habitat suitable for the Alameda whipsnake from a conservation or mitigation bank at a minimum ratio of 1:3 (habitat disturbed:habitat credit purchased).
- EBMUD will obtain the required permits from USFWS and CDFW for the potential take of Alameda whipsnakes.

The Project has the potential to take individual snakes if they are present in the area during construction and the potential to significantly impact long-term Alameda whipsnake habitat due to construction of the new dual Dos Osos Reservoirs. Because Mitigation Measure BIO-2 mitigates the potential impacts to the Alameda whipsnake by: requiring EBMUD to obtain necessary permits from USFWS and CDFW for the Alameda whipsnake, environmental awareness training for construction workers for the Alameda whipsnake, preconstruction surveys for Alameda whipsnakes, the cessation of work if any Alameda whipsnakes are encountered, a monitoring plan submitted to the USFWS and CDFW regarding any actions taken for the Alameda whipsnake, and EBMUD purchase of habitat credits for Alameda whipsnake critical habitat from a conservation or mitigation bank at a ratio of 1:3, implementation of Mitigation Measure BIO-2, would reduce impacts from short-term construction activities and permanent habitat loss to the Alameda whipsnake to less than significant levels. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

San Francisco Dusky-Footed Woodrat (Less than Significant Impact with Mitigation Incorporated)

The San Francisco dusky-footed woodrat is a medium-sized rat and is mostly nocturnal and active year round. The San Francisco dusky-footed woodrat can be found in coast live oak woodlands, coyote brush scrub, riparian areas and other habitats with dense trees and shrubs. Woodrats typically build nests of sticks and other debris on the ground, in the lower branches of trees and occasionally in human-made structures. Nests are often reused, and more than one woodrat may occupy the same nest. No woodrats were detected during the field reconnaissance; however, the species has a high potential to occur in the coast live oak woodlands adjacent to both the new dual Dos Osos Reservoirs site and the existing Dos Osos Reservoir site. The new dual Dos Osos Reservoirs and access road construction and demolition of the existing Dos Osos Reservoir could lead to the loss of woodrat nests and the mortality of woodrats. The species has a low potential to occur within the parking area at the Dos Osos Pumping Plant site.

To mitigate potentially significant impacts on the San Francisco dusky-footed woodrat at the new dual Dos Osos Reservoirs site and the existing Dos Osos Reservoir site, EBMUD will implement Mitigation Measure BIO-3.

Mitigation Measure BIO-3: Implement the following avoidance or minimization measures for the San Francisco dusky-footed woodrat:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive USFWS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the San Francisco dusky-footed woodrat, including natural history and habitat, a review of the state and federal listing of the species, the general protection measures to be implemented to protect the San Francisco dusky-footed woodrat, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of listed species and destruction or damage of their habitat would be a violation of state and federal law.
- A preconstruction survey will be performed by a qualified biologist (EBMUD) within seven days prior to the start of ground-disturbing activities to identify the locations of active San Francisco dusky-footed woodrat nests within the Project boundary. Any woodrat nests detected will be mapped and flagged for avoidance by the qualified biologist (EBMUD).
- If active nests are determined to be present, avoidance measures will be implemented first. Because San Francisco dusky-footed woodrats are year-round residents, avoidance mitigation is limited to restricting Project activities to avoid direct impacts to San Francisco dusky-footed woodrats and their active nests to the extent feasible. A minimum ten-foot buffer should be maintained between Project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if, in the opinion of a qualified biologist (EBMUD), removing the nest would be a greater impact than that anticipated as a result of Project activities.
- If an unoccupied woodrat nest is found within the Project site and it cannot be avoided, the nest should be disassembled by hand by a qualified biologist (EBMUD). The nest materials should be relocated off site outside of the wildlife exclusion fencing to prevent rebuilding.
- If occupied nests are found within the Project site, and a litter of young is found or suspected, the nest shall be left alone for two to three weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling. Dismantling shall be done by hand, allowing any animals to escape either along existing woodrat trails or toward other available habitat.
- EBMUD will notify CDFW of any nests, unoccupied or occupied, before they are dismantled.

Because Mitigation Measure BIO-3 requires preconstruction dusky-footed woodrat surveys, avoidance measures and buffer zones for active nests, and mitigations for both occupied and unoccupied nests, implementation of Mitigation Measure BIO-3 would reduce impacts, due to short-term construction, on the San Francisco dusky-footed woodrat to less than significant levels. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

Special-Status Invertebrates (Less than Significant Impact with Mitigation Incorporated)

The terrestrial Bridges' coast range shoulderband snail is known to occur in Contra Costa and Alameda Counties from Berkeley and San Pablo to the eastern base of Mount Diablo. The snail was not observed during initial site assessments. However, the species is difficult to identify, and targeted surveys are required to detect the species. Suitable habitat for the Bridges' coast range shoulderband snail exists at the new dual Dos Osos Reservoirs site but not at the existing Dos Osos Pumping Plant or Dos Osos Reservoir sites; therefore, the snail has the potential to only be present at the new dual Dos Osos Reservoirs site.

The Bridges' coast range shoulderband snail is not a federal- or state-listed species, but the snail is designated a "Special Animal" by CDFW due to its history of being reviewed as a candidate for federal listing, and, as such, occurrences of the snail are tracked by CDFW in the CNDDDB. Grubbing, grading and the movement of equipment may cause direct mortality if the species is present at the new dual Dos Osos Reservoirs site during construction activities.

To mitigate potentially significant impacts on the Bridges' coast range shoulderband snail at the new dual Dos Osos Reservoirs site, EBMUD will implement Mitigation Measure BIO-4.

Mitigation Measure BIO-4: Implement the following avoidance or minimization activities for Bridges' coast range shoulderband snails:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the Bridges' coast range shoulderband snail, including natural history and habitat, the general protection measures to be implemented to protect the snail, and a delineation of the limits of the work areas.
- A preconstruction survey will be performed by a qualified biologist (EBMUD) within 30 days prior to the start of ground-disturbing activities to provide a systematic search of vegetation and objects on site that could provide suitable shelter for the Bridges' coast range shoulderband snail.
- All live Bridges' coast range shoulderband snails of any life stage that are found during the preconstruction surveys will be captured and moved outside of the Project site, by a qualified biologist (EBMUD), to a site that provides suitable habitat.

Because Mitigation Measure BIO-4 requires a preconstruction survey for the Bridges' coast range shoulderband snail and capture, and relocation of any Bridges' coast range shoulderband snails found on the new dual Dos Osos Reservoirs site, implementation of Mitigation Measure BIO-4 would reduce short-term construction impacts to the Bridges' coast range shoulderband snail to less than significant levels. The Mitigation Monitoring

and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

Wildlife Exclusion Fencing

During construction and/or demolition at the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites, special-status animal species with a moderate potential to occur at either site have the potential to be impacted by construction activities, including clearing, grading, excavation, stockpiling, and demolition. At the existing Dos Osos Pumping Plant site, construction activities are limited to replacement of existing electrical and mechanical equipment within the existing pumping plant building, so special-status animal species will not be impacted by clearing, grading, excavation, stockpiling or demolition construction activities. Mitigation Measure BIO-5, Wildlife Exclusion Fencing, is required at the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites to minimize the occurrence of special-status animal species in designated construction sites. Wildlife exclusion fencing would allow for the egress of special-status animal species from designated construction sites and would prevent re-entry of special-status animal species to designated construction sites,

Mitigation Measure BIO-5: Wildlife exclusion fencing.

- Orange barrier safety fencing will be installed along the outside edges of the construction area to prevent encroachment of construction personnel and equipment beyond the approved limits of work.
- Wildlife exclusion fencing constructed of plywood, plastic, aluminum or silt fence material will be installed around the work area. Wildlife exclusion fencing will be buried (six inches, minimum) to prevent animals passing under the fence and will be high enough (three feet, minimum) to prevent amphibians, reptiles and small mammals from passing over the fence. Overhanging vegetation will be trimmed. The fencing will be inspected and repaired regularly. The fencing will be removed only when all construction equipment is removed from the Project site.
- The fencing will contain one-way egress for special-status species to the extent possible.
- A barrier to prevent special-status species from entering the work site will be placed across access roads into and out of the work site at the end of the day to prevent animal movement into the site overnight.

By being present at the new dual Dos Osos Reservoirs and existing Dos Osos Reservoir sites during construction, special-status animal species have the potential to be injured or harmed by short-term construction activities and heavy construction equipment. Because Mitigation Measure BIO-5 requires fencing that would allow for the egress of special-status animal species from designated construction sites and would prevent re-entry of special-status animal species to designated construction sites, implementation of Mitigation Measure BIO-5 and Mitigation Measures BIO-2 through BIO-4 at the new dual Dos Osos Reservoirs and existing Dos Osos Reservoir sites would reduce short-term construction impacts to special-

status species to less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

Special-Status Nesting Birds (Less than Significant Impact)

Avian species that are protected under the Migratory Bird Treaty Act (MBTA) have high potential to nest within all three Project sites (existing Dos Osos Pumping Plant, existing Dos Osos Reservoir, and new dual Dos Osos Reservoirs). Suitable nesting habitat for various raptors, as well as other migratory bird species, is present on or near the Project sites. Disruption of nesting birds could occur as a result of increased human activity (e.g., due to the use of heavy equipment and human traffic) during the breeding season (approximately February through August). Bird species may use trees, shrubs, man-made structures or the ground for nesting habitat. Impacts to potential nesting habitat could occur during construction as a result of tree and shrub removal, ground disturbance, equipment movement, or by direct mortality. Potential impacts on migratory birds include the destruction of eggs or occupied nests, direct mortalities of young, and the abandonment of nests with eggs or young birds prior to fledging. Potentially significant impacts could result from Project construction activities that would destroy occupied nests or cause migratory birds to abandon their nests.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of this standard construction specification includes the following provisions:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program (provided by EBMUD) of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. The training will include a description of the nesting birds of the MBTA, including natural history and habitat, the general protection measures to be implemented to protect the MBTA bird species, and a delineation of the limits of the work areas.
- It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior.
- If construction commences between February 1 and August 31, during the nesting season, the District will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction.
- If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size will be determined by the

District in consultation with California Department of Fish and Wildlife (CDFW) and is based on the nest location, topography, cover and species' tolerance to disturbance.

- If an avoidance buffer is not achievable, a qualified biologist provided by the District will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately and the Contractor shall notify the Engineer who will consult with the qualified biologist and appropriate regulatory agencies.
- If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by District's biologist, would be necessary.

Because Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and includes provisions for preconstruction nesting bird surveys, avoidance of construction during the nesting season, and delineation of avoidance buffer zones, impacts to migratory birds, including destruction of potential nesting habitat, eggs or occupied nests, direct mortalities of young, and the abandonment of nests with eggs or young birds prior to fledging, would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Roosting Bat Species (Less than Significant Impact)

Roosting (shelter) habitat is present for bat species at all three Project sites (existing Dos Osos Pumping Plant, existing Dos Osos Reservoir, and new dual Dos Osos Reservoirs). Roosting bat species typically use buildings, trees, bridges, and rock crevices for roost habitat. Bats use different roosts for different purposes, but common to all are an appropriate temperature regime and protection from predators and undesirable weather. During the summer when bats are most active and raising their young, they frequently use one roost during the day where they sleep and keep their young, and another roost at night for resting and digesting food. Day roosts tend to be cryptic and concealed; night roosts are more open and exposed. Both day roosts and night roosts can be used by multiple species, and fidelity to both kinds of roosts can be very high.

The pallid bat (*Antrozous pallidus*) has a moderate potential to occur at the new dual Dos Osos Reservoirs site, as there is one CNDDDB record of this species within one mile of the site, and mature oak trees may provide roosting habitat for this species. Construction activities may result in the removal or disturbance of hibernation or maternal roost sites, if they are present at the Project sites, due to noise or human traffic, and constitute a potentially significant impact to bat roosting habitat as it may result in direct mortality and reduction in

the reproductive success. Disturbances to roosting habitat of any bat species (not just special-status species bats) are considered potentially significant impacts.

Bats typically forage in and over woodlands, scrub, pasture lands, field margins and water. Suitable foraging habitat is located directly adjacent to the Project sites. However, the pallid bat typically forages one to two miles from its day and night roosts. Because bats are able to travel great distances to forage, potential impacts to bat foraging habitats are considered less than significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of this standard construction specification includes the following provisions:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program (provided by EBMUD) of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. The training will include a description of roosting bats, including natural history and habitat, the general protection measures to be implemented to protect the bat species, and a delineation of the limits of the work areas.
- If construction commences between March 1 and July 31, during the bat maternity period, the District will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction.
- If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, a qualified biologist provided by the District will conduct focused day- and/or night-emergence surveys, as appropriate.
- If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffers shall be constructed. The buffer size will be determined by the District in consultation with CDFW.
- If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safely evicted, under the direction of a qualified biologist provided by the District in consultation with CDFW to ensure that the bats are not injured.
- If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied

by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary.

Because Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, will be implemented as part of the Project, which addresses impacts to roosting bats and includes provisions for preconstruction roosting bat surveys, avoidance of construction during bat roosting season, delineation of avoidance buffer zones, and roosting monitoring during construction, the impact related to roosting bats is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- b. No Impact.** No waters or riparian habitats occur on or directly adjacent to the proposed Project sites. Therefore, the Project would not result in any impacts to any waters or riparian habitat identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

A review of the CNDDDB found that two sensitive natural communities occur within five miles of the new dual Dos Osos Reservoirs site: Northern Maritime Chaparral and Serpentine Bunchgrass. However, neither of these communities occurs at the Project sites as determined during the field reconnaissance by EBMUD biologists. Therefore, the Project would not result in any impacts to any sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, and the Project would not result in any impacts to riparian habitat or sensitive natural communities. Impacts to Alameda whipsnake designated critical habitat are discussed in (a), above.

- c. No Impact.** No federally-protected wetlands occur within the Project sites. Therefore, the Project would not result in any impacts on federally-protected wetlands as defined by Section 404 of the Federal Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means.

- d. Less than Significant Impact.**

The existing Dos Osos Pumping Plant and existing Dos Osos Reservoir sites are not located within open space that acts as a wildlife corridor between important habitat units. Both sites are within developed, residential communities. Thus, construction activities at both sites and long-term operation of the Dos Osos Pumping Plant will not interfere substantially with the movement of wildlife species or the use of established wildlife corridors.

The new dual Dos Osos Reservoirs site is located just below a ridgeline, to the east of Siesta Valley on EBMUD watershed lands, which is situated between open space in the Berkeley Hills to the west and protected watershed lands to the east surrounding San Pablo and Briones Reservoirs. Siesta Valley borders the ridge above the Caldecott Tunnel, which acts as an important corridor for wildlife traveling north or south across Highway 24. The Caldecott corridor links Tilden, Wildcat Canyon and Siesta Valley to the north with Sibley,

Huckleberry and Redwood Regional Parks to the south. Land above the Caldecott Tunnel is a significant point of passage for large animals between the two large open space areas described above.

The new dual Dos Osos Reservoirs site falls within open space that contributes to the greater Caldecott wildlife corridor. This area connects outlying populations and supports dispersal through the East Bay Hills. Mountain lions, coyotes, bobcats, gray foxes, black tailed deer, small mammals and reptiles, including the threatened Alameda whipsnake, potentially utilize this habitat. Numerous species may move through the Project sites for daily home-range activities, such as foraging or escape from predators.

However, the new dual Dos Osos Reservoirs construction will not create a barrier to, or substantially interfere with, wildlife movements through the Caldecott corridor. The small size and situation of the Project site make it unlikely to significantly impinge on animal movements. Less than 0.25 acres of grassland will be impacted by the Project. Areas with dense riparian or scrub habitat that provide cover for wildlife movement will not be significantly impacted. Coast live oak woodland canopy will be retained to the extent possible within the short section affected by the paved access road. Human traffic from construction may have a temporary impact on animals dispersing or moving through this area, but this short-term impact would be less than significant, because wildlife movement impacts would be confined to work (daytime) hours, and the new dual Dos Osos Reservoirs site is surrounded by open space outside of the construction and staging area that would be available for wildlife movement around the construction site. After construction, the new dual Dos Osos Reservoirs would be fenced to exclude wildlife, and wildlife movement could occur around the enclosed reservoir site and over the new access road.

Therefore, the Project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.

- e. **Less than Significant Impact.** Although EBMUD is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving the transmission of water (Government Code Section 53091), EBMUD strives to consider and work with host jurisdictions and neighboring communities during project planning and to conform to local environmental protection policies, where feasible and not contrary to its public purpose and responsibilities.

City of Orinda General Plan

The City of Orinda General Plan was adopted in 1987. Conservation goals within the General Plan include: maintaining wildlife by preserving habitats and minimizing impacts to creeks and reservoirs. Applicable guiding policies for biological resources listed within the plan include: 1) preservation of rare and endangered species; 2) preservation of valuable wildlife habitats and connecting open space to retain wildlife corridors; 3) preservation of oak woodlands and heritage trees; 4) protection of creeks and riparian areas from pollution,

erosion and siltation; and 5) support the preservation of EBMUD watershed lands and retain existing recreational open space.

The Project will not conflict with any of the applicable guiding policies of the City of Orinda General Plan listed above. Impact discussions a), b) and d) above detail how incorporation of several EBMUD practices and procedures into the Project and implementation of Mitigation Measures BIO-1 through BIO-5 will ensure that impacts to rare and endangered species and valuable wildlife habitats and corridors will be less than significant. Also, regarding preservation of oak woodlands and heritage trees, the new paved access road to the new dual Dos Osos Reservoirs from the existing Dos Osos Reservoir site will entail the removal of approximately five native trees to provide room for the required access road. Coast live oak woodland canopy will be retained to the extent possible within the short section affected by the paved access road. As detailed in the Project Description and above, the Project will plant native trees as screening around the new dual Dos Osos Reservoirs. Potential hydrology and water quality impacts are discussed in Section IX of this MND and detail how incorporation of specific EBMUD practices and procedures into the Project ensures that impacts to creeks and riparian areas from pollution, erosion and siltation would be less than significant. Regarding the preservation of EBMUD watershed lands and existing recreational open space, the new dual Dos Osos Reservoirs will occupy less than a quarter of an acre on watershed lands, preserving watershed lands and open space to the extent possible while allowing for replacement of an aging water facility and improving level of service to potable water customers.

Contra Costa County General Plan

The Contra Costa County (CCC) General Plan 2005-2020 was adopted in 2005. The Conservation Element includes goals and policies, developed for resource protection, that address issues regarding the identification, preservation and management of natural resources. Conservation policies of the Conservation Element that are applicable to biological resources for the Project include:

- Resource utilization and development shall be planned within a framework of maintaining a healthy and attractive environment.
- Watersheds, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations shall be preserved and enhanced.

The new dual Dos Osos Reservoirs site is located on EBMUD watershed lands in the Siesta Valley. The Siesta Valley is designated a significant ecological resource area of CCC in the CCC General Plan, primarily due to the occurrence of special-status species. The vegetation and wildlife goals specific to significant ecological resource areas in the Conservation Element that are applicable to biological resources for Project include:

- To protect ecologically significant lands, wetlands, plant and wildlife habitats.

- To protect rare, threatened and endangered species of fish, wildlife and plants, significant plant communities, and other resources which stand out as unique because of their scarcity, scientific value, aesthetic quality or cultural significance.
- Significant ecological resource areas in CCC shall be identified and designated for compatible low-intensity land uses. Setback zones shall be established around the resource areas to assist in their protection.
- Areas determined to contain significant ecological resources, particularly those containing endangered species, shall be maintained in their natural state and carefully regulated to the maximum legal extent. Acquisition of the most ecologically sensitive properties within CCC by appropriate public agencies shall be encouraged.
- Any development located or proposed within significant ecological resource areas shall ensure that the resource is protected.
- CCC shall utilize performance criteria and standards which seek to regulate uses in and adjacent to significant ecological resource areas.

The Project will not conflict with any of the applicable conservation policies or vegetation and wildlife goals listed above. Impact discussions a), b) and d) above detail how incorporation of several EBMUD practices and procedures into the Project and implementation of Mitigation Measures BIO-1 through BIO-5 will ensure that impacts to rare and endangered species and valuable wildlife habitats and corridors will be less than significant. The Siesta Valley is owned by EBMUD and managed as designated watershed lands as discussed in the following section. The new dual Dos Osos Reservoirs will occupy less than a quarter of an acre on watershed lands, preserving watershed lands and open space to the extent possible while allowing for replacement of an aging water facility and improving level of service to potable water customers.

EBMUD East Bay Watershed Master Plan (EBWMP)

The purpose of EBMUD's EBWMP (1995) was to establish long-term management direction for EBMUD-owned lands and reservoirs that would ensure protection of EBMUD's water resources and preserve environmental resources. In 1993, EBMUD's Board of Directors provided seven guiding principles for the EBWMP. These principles guided an integrated planning process that identified resource and land use management goals, objectives, and implementation guidelines. The guiding principles that pertain to biological resources are as follows:

- Ensure protection of the natural, cultural, and historical resources of the watershed on a long-term basis.
- Respect natural resources; sustain and restore populations of native plants and animals and their environments.

The Project will not conflict with any of the applicable guiding principles listed above. Impact discussions a), b) and d) above detail how incorporation of several EBMUD practices and procedures into the Project and implementation of Mitigation Measures BIO-1 through

BIO-5 will ensure that impacts to rare and endangered species and valuable wildlife habitats and corridors will be less than significant

For these reasons, any significant impacts related to potential conflicts with local policies or ordinances regarding biological resources will be less than significant.

- f. Less than Significant Impact.** The existing Dos Osos Pumping Plant and existing Dos Osos Reservoir sites are not located within any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan. Thus, short-term construction activities and long-term operations will not conflict with the provisions of any adopted plan.

The new dual Dos Osos Reservoirs site is within the boundaries of the EBMUD Low Effect East Bay Habitat Conservation Plan (2008) (“watershed lands HCP”), which covers 28,000 acres of watershed lands in the San Francisco East Bay Area owned by EBMUD. The watershed lands HCP covers activities that EBMUD must undertake to meet its various obligations as a public entity to provide water service to its customers in the East Bay. EBMUD activities covered under this HCP include programs for water quality, biodiversity, forestry, livestock grazing, agricultural operations, fire and fuel management, recreation and developed trails, and the storage and removal of trench spoils. However, new, permanent construction projects are not covered under the watershed lands HCP. Thus, while the new dual Dos Osos Reservoirs site is located within EBMUD watershed lands, the Project is not covered under the existing watershed lands HCP, because the Project proposes the construction of new dual reservoirs.

The watershed lands HCP covers impacts to special-status species from watershed land management activities such as stockpond management, access road and trail maintenance, and vehicle strikes on EBMUD watershed roadways. The watershed lands HCP covers impacts to two plant and five animal species: pallid manzanita, Santa Cruz tarplant, rainbow trout, CRLF, western pond turtle, pallid bat, and the Alameda whipsnake.

Habitat for the pallid manzanita, Santa Cruz tarplant and rainbow trout is not present within the new dual Dos Osos Reservoirs site. Aquatic habitat for the CRLF and western pond turtle is also not present. There is low probability for dispersal of either species through the Project site due to their distance from pond or riparian habitat and the lack of cover. As described in Table 3.1, pallid bats may be present within mature trees on the Project site; however, the watershed lands HCP’s protection measures solely target the preservation of the nursery colony located in Pinole Valley. Scrub patch identified as core habitat for the Alameda whipsnake under the HCP is located within a few hundred feet of the new dual Dos Osos Reservoirs site. The watershed lands HCP mandates that no more than one percent of core habitat may be lost over the 30-year term of the HCP. The core scrub habitat area will not be impacted as part of the Project.

Impact discussion a) above details how incorporation of several EBMUD practices and procedures into the Project and implementation of Mitigation Measures BIO-2 and BIO-5 will ensure that impacts to roosting bats and the Alameda whipsnake will be less than

significant. Because the proposed Project would conform to the provisions of the existing watershed lands HCP that apply to the new dual Dos Osos Reservoirs site to the extent possible, there will be no impacts to the goals or objectives of the watershed lands HCP.

V. Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of a unique archaeological resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

a. No Impact. None of the Project sites are listed on the Federal Register of Historic Places or the California Register of Historical Resources. The nearest listed historic resource is the EBMUD Orinda Water Treatment Plant (WTP) at 190 Camino Pablo in the City of Orinda. EBMUD identifies the Orinda WTP as a historic architectural resource. However, it is approximately 2.5 miles away from any of the Project sites and will not be impacted by the Project.

b. through d. Less than Significant Impact. The existing Dos Osos Pumping Plant and Dos Osos Reservoir are both located on developed land that has been subject to prior excavation and disturbance. All project work at the existing Dos Osos Pumping Plant and Dos Osos Reservoir sites will occur in areas that have been previously disturbed. No archaeological, paleontological resources or human remains have been encountered previously at either of these two sites.

EBMUD maintains an Archaeological Resources Geographic Information System (GIS) database that is updated annually with the results of a records search of the Northwest Information Center (NWIC) of the California Historical Resources Information System. A GIS survey of the existing Dos Osos Pumping Plant site, existing Dos Osos Reservoir site, and the new dual Dos Osos Reservoirs site found no recorded occurrences of archaeological resources within the immediate vicinity (half mile) of any of the Project sites. However, the potential for inadvertent discovery of cultural resources is a potential impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project,

including EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.9, Protection of Cultural and Paleontological Resources, of this standard specification, which includes appropriate cultural resources management practices and complies with statutory requirements, outlines the following procedures:

- Preconstruction cultural resources training is required for all construction personnel.
- In the event that a cultural or paleontological resource is identified during preconstruction activities or during excavation for construction activities, all work within 100 feet of the resource shall be halted until a qualified archaeologist can review, identify, and evaluate the resource for its significance. Should the archaeologist determine that an archaeological resource has the potential to be a tribal cultural resource, a Native American monitor shall be retained by EBMUD to monitor work in the area where the tribal cultural resource was discovered.
- Discovery of human remains requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery. EBMUD shall contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC). The NAHC shall 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 EBMUD for the appropriate means of treating the human remains and any associated funerary objects.

Because Section 3.9, Protection of Cultural and Paleontological Resources, of EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and it requires implementation of archaeological resources procedures that address the inadvertent discovery of cultural resources and follows statutory law, the Project’s impact related to cultural resources is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

VI. Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Mitigated Negative Declaration
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Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

Geology, geotechnical and seismicity assessments were conducted to evaluate potential environmental impacts for the Project based on review of available geological maps, reports and other related literature (EBMUD, 2015). At the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites, no significant geological or geotechnical impacts from seismic activity, liquefaction, landslides, soil erosion or expansive soils will occur. Both of these sites are previously disturbed sites with existing structures in place. The existing Dos Osos Reservoir will be demolished in place, and the Dos Osos Pumping Plant rehabilitation only involves replacing existing pump units within the existing pumping plant structure. From geotechnical and geological viewpoints, the proposed new dual Dos Osos Reservoirs site is suitable for construction and operation of the new dual reservoirs.

a. (i. and ii.) Less than Significant Impact. None of the Project sites are within mapped fault zones. The new dual Dos Osos Reservoirs and associated access road and inlet-outlet pipeline will be designed to meet the latest uniform building code requirements to resist strong ground motions. EBMUD Engineering Standard Practice 512.1, Water Main and Services Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements, dictate basic requirements for water pipelines and design standards for pipelines to withstand seismic hazards. The closest fault zone, the Hayward Fault Zone, is approximately 10,000 feet from the Project sites. Because none of the Project sites are within mapped fault zones and the Project will be built in compliance with EBMUD standard practices, the potential for exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault or strong seismic ground shaking, is less than significant.

a. (iii. and iv.) and c. Less than Significant with Mitigation Incorporated. The soils most susceptible to liquefaction and other sources of seismic-related ground failure such as lateral spreading, are clean, loose, uniformly graded, saturated, fine-grained soils that occur close to the ground surface, usually at depths of less than 50 feet. Based on geologic maps, the new dual Dos Osos Reservoirs site is underlain by weakly consolidated pebble conglomerate, sandstone, claystone and siltstone (including the Orinda and Siesta Formations), which are susceptible to liquefaction, subsidence, lateral spreading and landslides.

Factors determining the liquefaction and lateral spreading potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. While there is not an active seismic source located at the new dual Dos Osos Reservoirs site, there are areas of the site that may be composed of loose clayey sand and silty sand that are subject to liquefaction. However, construction of the new dual Dos Osos Reservoirs will require excavation (cut) into the existing slopes, which entails removal of any and all overburden or topsoil within the dual reservoirs' site footprint which would substantially remove all soils with the greatest liquefaction and lateral spreading potential. Because the potential for liquefaction and lateral spreading is high in the areas of loose clayey sand and silty sand at the new dual Dos Osos Reservoirs site, Mitigation Measures GEO-1 and GEO-2 will be implemented by EBMUD to reduce this impact to less than significant levels:

Mitigation Measure GEO-1: Incorporate geotechnical investigation of the dual reservoirs site into construction and design requirements.

- EBMUD shall conduct a detailed geotechnical investigation of the new dual Dos Osos Reservoirs site prior to design to evaluate the potential for liquefaction, subsidence, and lateral spreading; extent of landslide deposits; and develop applicable slope stabilization methods, as necessary. The geotechnical investigation may include drilling or trenching to obtain subsurface information and to develop engineering recommendations for foundation and slope design. Recommendations and results from the geotechnical investigation shall be incorporated into design and construction of the Project to comply with current seismic and engineering standards and to mitigate against geologic and seismic hazards. Recommendations shall also be incorporated into the proposed Project specifications for implementation during construction and shall be verified during construction by a licensed civil engineer (EBMUD) who shall monitor construction activities to ensure compliance with the design intent.

Mitigation Measure GEO-2: Replace soils (colluvium and alluvium) with high liquefaction potential within the Project site with compacted fill, as deemed necessary in the geotechnical investigation (GEO-1).

- Areas of soils with high liquefaction potential within the grading footprint of the new dual reservoirs will be removed and replaced with engineered, compacted fill material. The full extent of the actual locations and amounts to be removed will be

determined by a licensed civil engineer (EBMUD) based on the review of grading plans, as well as observations made in the field during grading.

The new dual Dos Osos Reservoirs construction would occupy areas underlain at shallow depth by interbedded siltstone and claystone of the Orinda Formation, which is prone to landslides. The new dual Dos Osos Reservoirs site is situated within the “Few Landslides” zone based on the U. S. Geological Survey map, *Summary Distribution of Slides and Earth Flows in Contra Costa County, California*. Also, the foundation report for the existing reservoir (EBMUD, 1954) found the underlying Moraga Formation to be composed of andesite and basalt flows, strong and competent formations, with an overburden or topsoil depth of 1.5 to 2 feet. Because the new dual Dos Osos Reservoirs site is approximately 300 feet from the existing Dos Osos Reservoir site, it is likely that the new dual Dos Osos Reservoirs site is underlain, at least partially, by the Moraga Formation as well as the Orinda and Siesta Formations.

A small anomalous, gently rounded bulge was observed approximately 130 feet upslope of the new dual Dos Osos Reservoirs site, and four small landslides were observed during an aerial photo review within a 1,000-foot radius of the dual reservoirs site on the watershed lands. The potential for further landslides to continue in the future would be a potentially significant impact. Mitigation Measures GEO-3 and GEO-4 will be implemented by EBMUD to reduce this impact to less than significant levels:

Mitigation Measure GEO-3: Remove landslide deposits, as deemed necessary in the geotechnical investigation (GEO-1).

- Areas of landslide deposits within the grading footprint shall be removed. Portions of some landslide areas that extend upslope of the new dual Dos Osos Reservoirs site may be left in place; where appropriate, buttress fills and debris catchment areas will be designed and constructed. The extent of actual removals will be determined by a licensed civil engineer (EBMUD) based on the review of grading plans, as well as observations made in the field during grading.

Mitigation Measure GEO-4: Implement recommended slope stabilization techniques, as deemed necessary in the geotechnical investigation (GEO-1). Appropriate slope stabilization techniques will be implemented, as recommended by a licensed civil engineer (EBMUD). These techniques include but are not limited to:

- Buttressing or encapsulating landslides using engineered, compacted fill material.
- Performing corrective grading and recompaction with engineered fill in shallow cut or natural areas of the Project site.
- Installing catchment basins and berms to contain potential debris flows that might occur on the steep areas upslope from the proposed reservoirs.
- Installing additional buttress fill at the toe of the existing landslide.
- Installing plate pile slope reinforcement technologies.

- Installing drainage mechanisms, such as subdrains, concrete-lined channels, finger drains, hydroaugers, or gallery drains, within the slopes to move shallow subsurface water away from unstable slopes.

The example slope stabilization techniques outlined above may have the potential to cause environmental impacts. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For potential slope stabilization impacts related to Aesthetics, Air Quality, Biological Resources, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant. The new dual Dos Osos Reservoirs site occurs on federal critical habitat for the Alameda whipsnake, and any slope stabilization techniques have the potential to impact the Alameda whipsnake and other special-status or rare plant and wildlife species. Mitigation Measures BIO-1 through BIO-5 will ensure that any potential biological impacts to special-status species plants, reptiles, mammals and invertebrates with the potential to occur at the Project sites from slope stabilization techniques implemented in Mitigation Measure GEO-4 will be reduced to less than significant levels (Section IV, above). No further mitigation would be required.

In summary, because Mitigation Measures GEO-1 through GEO-4 will be implemented, and these measures require incorporation of a geotechnical investigation of the dual reservoirs site into construction and design requirements and the implementation of all recommendations from the geotechnical investigation (including potential soil replacement, landslide deposit removal, and slope stabilization techniques), impacts resulting from seismic-related ground failure, including liquefaction and seismic-induced landslides, would be reduced to less than significant levels. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures.

- b. Less than Significant Impact.** Construction work will incorporate erosion control measures in accordance with applicable EBMUD practices and procedures.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. This specification includes provisions for preventing soil erosion.

Section 1.1B of EBMUD's Standard Construction Specification 01 35 44 requires the construction personnel to:

- Dispose of excess material in locations approved by EBMUD consistent with all applicable legal requirements and disposal facility permits.
- Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto work areas. The methods of diversions

or control must be adequate to ensure the safety of stored materials and personnel in the work area. At the completion of work, ditches, dikes, and other ground alterations made by the construction crew must be removed, and ground conditions must be returned to their former condition.

- Maintain construction sites to ensure that drainage from the site will minimize erosion of stockpiled or stored materials and the adjacent native soil material.

Implementation of Section 1.1B, Site Activities, of Standard Construction Specification 01 35 44 ensures that spoils generated by short-term construction activities will be monitored and controlled to minimize soil erosion.

Section 1.3A of Standard Construction Specification 01 35 44 includes submittal of a Storm Water Pollution Prevention Plan (SWPPP) and requires that the SWPPP shall require:

- Measures to be implemented that prevent the discharge of contaminated storm water runoff from the Project site. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, liquid discharges with pH less than 6.5 or greater than 8.5, and chlorine residuals in potable water discharges, and all other contaminants known to exist at the Project site.

Implementation of Section 1.3A, Storm Water Management, of Standard Construction Specification 01 35 44, includes submittal of an SWPPP even if the Project does not require a Construction General Permit (CGP) and requires that the SWPPP shall conform to all State Water Resources Control Board (SWRCB) requirements for a CGP SWPPP. The SWPPP requires implementation of measures to prevent the discharge from the Project site of stormwater contaminated with many potential pollutants, including sediments that could cause erosion. The SWPPP requirements are discussed in more detail in Section IX.

Because Section 1.1B, Site Activities, and Section 1.3A, Storm Water Management, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and include erosion control measures that would reduce the potential for short-term soil erosion and loss of topsoil by including provisions for the control of runoff, including diversion and drainage of surface waters from construction sites, the Project impact related to soil erosion or loss of topsoil is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- d. No Impact.** None of the Project sites are located on expansive soil.
- e. No Impact.** Septic tanks or alternative wastewater disposal systems are not part of the Project.

VII. GHG Emissions

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

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 exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region’s existing air quality conditions. Similar to regulated air pollutants, greenhouse gas (GHG) emissions and global climate change also represent cumulative impacts. GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change.

Climate change impacts may include an increase in extreme heat days, higher concentrations of air pollutants, sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts. No single project could generate enough GHG emissions to noticeably change the global average temperature. However, the combination of GHG emissions from past, present, and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts.

The GHG emissions analysis considers both long-term operational and short-term construction impacts associated with the proposed Project. In June 2010, BAAQMD adopted thresholds of significance, to assist in the review of projects subject to CEQA, that were designed to establish the level at which BAAQMD air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were posted on BAAQMD’s website and included in the 2011 CEQA Air Quality Guidelines (updated May 2011). EBMUD considers the 2011 BAAQMD significance thresholds adequate to provide a conservative evaluation of a project’s potential air quality impacts.

- a. Less than Significant Impact.** BAAQMD’s GHG threshold is defined in terms of CO₂e, a metric that accounts for the emissions from various GHGs based on their global warming potential. If annual emissions of operational-related GHGs exceed these threshold levels, the proposed Project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change.

The thresholds of significance for long-term, operational-related GHG emissions are:

- For land use development projects, the threshold is compliance with a qualified GHG Reduction Strategy (BAAQMD CEQA Air Quality Guidelines, Section 4.3); or annual emissions less than 1,100 metric tons per year (MT/yr) of carbon dioxide equivalent (CO₂e); or 4.6 MT CO₂e/SP/yr (residents + employees). Land use development projects include residential, commercial, industrial, and public land uses and facilities.

As stated in Section III above, long-term operation of the rehabilitated Dos Osos Pumping Plant and the new dual Dos Osos Reservoirs will not emit exhaust or fumes during future operations. The expected annual emission during the project construction period is not expected to exceed or approach the operational threshold of 1,100 metric tons CO₂e per year. EBMUD's recent analysis of similar and larger projects having a much greater scope of work than the Project determined that the construction phase emissions for those projects would generate between 144 and 2,570 metric tons of CO₂e per year. Key project elements of the similar and larger projects include: demolition of a 37-million-gallon (MG), open-cut reservoir, construction of a new 3.5 MG concrete tank, construction of a new pumping plant structure, replacement of distribution pipelines, and onsite landscape improvements. Since the scope of the Project is much less than any of these key project elements, the expected annual emission would be less than BAAQMD's operational threshold of 1,100 metric tons CO₂e per year. Therefore, pumping plant and reservoir operational GHG impacts from the proposed Project would have no impact.

BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, BAAQMD encourages lead agencies to incorporate BMPs to reduce GHG emissions during construction, as feasible and applicable. The BMPs recommended by BAAQMD include using alternative-fueled construction equipment, using local building materials, and recycling or reusing a portion of construction waste or demolition materials.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 requires construction crews to use alternative-fueled construction equipment and to recycle or reuse construction waste or demolition materials to the extent feasible and includes the following:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emissions controls such as:
 - Minimize the use of diesel generators where possible.
 - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
 - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
 - Locate generators at least 100 feet away from adjacent homes and ball fields.
 - Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.
- Contractor shall implement the following measures to reduce GHG emissions from fuel combustion:
 - On-road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
 - Construction equipment engines shall be maintained to manufacturer specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
 - Demolition debris shall be recycled for reuse to the extent feasible (excluding wood treated with preservatives).

Line power is available at the existing Dos Osos Reservoir site and existing Dos Osos Pumping Plant site; so, electrical power sources will be used as feasible and applicable at those sites. Also, the temporary portable pump used at the Dos Osos Pumping Plant during construction will be electric, as detailed in the Project Description.

Because Section 3.4A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes specified air emission control BMPs to minimize short-term construction diesel exhaust emissions, and includes GHG emission controls which would reduce GHG emissions from fuel combustion, the Project construction impacts related to

GHG emissions would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

b. No Impact.

Bay Area 2010 CAP

As discussed in Section III, Air Quality, of this MND, the Project would not conflict with the 2010 CAP. General estimated basin-wide, construction-related emissions are included in BAAQMD emission inventory and are not expected to prevent attainment or maintenance of the ozone, particulate matter, and carbon monoxide levels within the Bay Area. Thus, the Project would have no impact and would not conflict with or obstruct implementation of the Bay Area 2010 CAP.

Contra Costa County Climate Action Plan

The Contra Costa County Climate Action Plan was adopted by the County Board of Supervisors in December 2015. The Climate Action Plan identifies specific measures on how the County can achieve a GHG reduction target of 15 percent below baseline levels by the year 2020. In addition to reducing GHG emissions, the Climate Action Plan includes policies and actions to improve public health and provide additional community benefits, and it lays the groundwork for achieving long-term greenhouse reduction goals for 2020 and 2035. These practices and procedures identified in the Action Plan are outside the purview of the proposed Project, because they entail global GHG reduction strategies such as promoting County-wide goals of energy efficiency, renewable energy, reducing transportation emissions, and reducing solid waste.

EBMUD Action Plan

In 2008, EBMUD adopted a climate change objective in EBMUD's Strategic Plan focusing on using resources (economic, environmental, and human) in a responsible manner that meets current needs without compromising the ability to meet future needs. In response to the climate change objective, EBMUD prepared the Climate Change Monitoring and Response Plan (2014)³ and an Action Plan that provides guidance to inform EBMUD of decisions regarding water supply, water quality, and infrastructure planning. EBMUD's goal is to reduce GHG emissions 50 percent by 2040 (as compared to baseline GHG emissions in year 2000). In 2013, GHG emissions generated by EBMUD were 31,244 MTCO_{2e}, which were 31 percent below 2000 GHG emission levels. EBMUD tracks GHG emissions per the California Climate Action Registry protocols.

The EBMUD Action Plan requires certain practices and procedures to help EBMUD achieve the GHG reduction goal. These practices and procedures identified in the Action Plan are outside the purview of the proposed Project, because they provide guidance on EBMUD

³EBMUD. 2014. 2014 Climate Change Monitoring and Response Plan. September 2014.

long-term decisions regarding water supply, water quality, and infrastructure planning. The Project will not conflict with a plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

VIII. Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

The Hazards and Hazardous Materials section is based upon a review of existing hazardous material analyses performed for the existing Dos Osos Reservoir and application of findings for pumping plants and reservoirs of similar construction and age to the Project facilities. The purpose of the review was to gather information about the Project sites and surrounding areas and identify conditions indicative of releases or threatened releases of hazardous substances, pollutants and contaminants, petroleum or petroleum products, and controlled substances. These conditions were evaluated to determine if they represent potential impacts at the proposed Project sites.

As used in this section, the term “hazardous material” is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. As used in this section, the term “hazardous waste” generally refers to a hazardous material that has been used for its original purpose and is about to be discarded or recycled. In California, a hazardous waste is defined as a waste, or combination of wastes that, due to its quantity, concentration, or physical, chemical, or infectious characteristics, may either:

- Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

a. and b. Less than Significant Impact.

Superchlorinated water for pipeline disinfection. Superchlorinated water discharges contain chlorine residual concentrations significantly greater than potable water, generally in the range of approximately 100 to 300 milligrams per liter (mg/L). As part of the construction of all new water distribution pipelines, EBMUD disinfects the pipelines with chlorine prior to the pipeline being placed in service. The new 800-foot, 12-inch steel inlet-outlet pipeline connecting the new dual Dos Osos Reservoirs to the existing water distribution system will undergo chlorine disinfection. The planned and unplanned discharge and release of superchlorinated water after testing and disinfection of new pipelines could potentially violate water quality standards or waste discharge requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 3.0, Water Quality Protection, of EBMUD’s Environmental Compliance Manual. In accordance with Section 3.0 of the Environmental Compliance Manual, the superchlorinated water produced during testing and disinfection activities at the new dual Dos Osos Reservoirs site would be pumped into a tanker truck, dechlorinated, transported off site, and discharged to EBMUD’s Main Wastewater Treatment Plant. Section 3.0, of the EBMUD Environmental Compliance Manual also requires:

- Placement of BMPs (dechlorination tabs and sediment control) at all affected storm drains, even if there are no planned discharges, since unplanned discharges may occur at any time when working on pipelines containing chlorinated water.
- Photo documentation of all BMP installations.
- Documented calculation of the amount of dechlorination agent necessary to dechlorinate the planned discharge.
- Measurement and recording of the amount of dechlorination agent used.

Because EBMUD has incorporated Section 3.0 of its Environmental Compliance Manual into the Project, superchlorinated water discharges from disinfection of the new pipelines required for the new dual Dos Osos Reservoirs will be captured, treated, and discharged to EBMUD's Main Wastewater Treatment Plant, and any unplanned discharges will be dechlorinated by appropriately sized BMPs placed at all affected storm drains. These components of Section 3.0 will ensure that no water quality standard or waste discharge requirement violations occur as a result of superchlorinated water discharges associated with pipeline disinfection.

In addition, EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project. Section 1.3A, of EBMUD's Standard Construction Specification 01 35 44, includes submittal of an SWPPP even if the Project does not require a CGP and requires that the SWPPP shall conform to all SWRCB requirements for a CGP SWPPP. The SWPPP requires implementation of measures to prevent the discharge from the Project site of stormwater contaminated with any potential pollutants, including, but not limited to, soil, sediment, concrete residue, liquid discharges with pH less than 6.5 or greater than 8.5, and chlorine residuals in potable water discharges, and all other contaminants known to exist at the Project site. As such, implementation of Section 1.3A, Storm Water Management, will further protect against unplanned discharges of superchlorinated water from the new dual Dos Osos Reservoirs site during stormwater runoff events. The SWPPP requirements are discussed in more detail in Section IX.

In addition, Section 1.3D of EBMUD's Standard Construction Specification 01 35 44 requires submittal of a Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during Project construction. The plan shall include:

- A list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products.
- Measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate responses to spills.
- Phone numbers for notifying appropriate regulatory agencies and EBMUD.
- Identification of spill-related worker and public health and safety issues for each known hazardous substance used on the jobsite.
- Spill control and cleanup procedures.

Implementation of Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44, requires a Spill Prevention and Response Plan that will prevent and control the accidental release of superchlorinated water during the disinfection of the new pipelines required for the new dual Dos Osos Reservoirs.

Because Section 3.0, Water Quality Protection, of EBMUD's Environmental Compliance Manual, and Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and these practices require controls regarding the discharge of superchlorinated water, controls to prevent the discharge of contaminated storm water runoff from the Project site, and controls to prevent the accidental release of hazardous materials during Project construction, the Project impact related to creation of a significant hazard to the public or the environment through the routine disinfection of potable water pipelines using chlorinated water, a potential violation of water quality standards or waste discharge requirements, is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Lead. At the existing Dos Osos Pumping Plant site, because only electrical and mechanical equipment upgrades will occur within the existing pumping plant structure, potential impacts from human encounters with lead will not be significant. At the new dual Dos Osos Reservoirs site, because the site is currently undeveloped grasslands, and no occurrences of hazardous materials have been recorded at the site, potential impacts from human encounters with lead will not be significant.

EBMUD completed a Reservoir Materials Assessment Program to determine whether any drinking water reservoirs contained construction materials with hazardous components (EBMUD, 1994). The existing Dos Osos Reservoir was among the reservoirs sampled (both coatings and sealants were tested) – cadmium, lead, mercury, zinc, and polychlorinated biphenyls (PCBs) were not detected. A site investigation in 1996 discovered dispersed deposits of light brown sand over the existing Dos Osos Reservoir site that were found to contain high concentrations of lead. Remediation activities removed lead-contaminated soil from the affected areas. Based on the analytical results of verification samples taken after remediation, concentrations of lead at the site were found to be below the established risk-based goal for Dos Osos Reservoir (250 milligram/kilogram [mg/kg]). This site-specific, remedial goal is more stringent than the 2001 Environmental Protection Agency's Lead Rule which considers lead a hazard when equal to or exceeding 400 parts per million (ppm – equivalent to mg/kg) of lead in bare soil in children's play areas. The report concluded that no significant potential health or ecological risk remained. However, the existing Dos Osos Reservoir site may have been impacted by aerially deposited lead during the last 20 years since the assessment; thus, during the demolition of the existing Dos Osos Reservoir, there is the potential for the accidental release of lead-contaminated soil into the environment which could potentially violate water quality standards or waste discharge requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 9.0, Trench Spoils Field Management Practices, of EBMUD's

Environmental Compliance Manual. Section 9.0 of the Environmental Compliance Manual outlines procedures to be followed prior to and during projects to ensure that worker exposure to contaminants of concern is minimized and that spoils are disposed of properly. The Trench Spoils Field Management Practices require project site investigations, collection and analysis of soil, slurry and groundwater samples if deemed necessary by initial site investigations and database record searches, and, depending on the results of the sampling, advance soil, slurry and groundwater disposal arrangements. Implementation of these requirements of Section 9.0 of the Environmental Compliance Manual will ensure that no water quality standard or waste discharge requirement violations occur as a result of accidental release of lead-contaminated soil into the environment.

EBMUD Procedure 711, Hazardous Waste Removal, has been incorporated into the Project, which defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. Procedure 711 outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests. Implementation of Procedure 711 will ensure proper characterization, handling and disposal of any lead-contaminated soil found at the existing Dos Osos Reservoir site.

Section 1.1, Compliance and Intent, of EBMUD's Standard Construction Specification 02 83 13, Lead Hazard Control Activities, has been incorporated into the Project and includes the following provisions for handling, removal and disposal of lead-contaminated materials from the Project site, if found:

- All labor, materials, facilities, equipment, services, employee training and testing, permits and agreements necessary to perform the lead removal shall be in accordance with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Air Quality Management District with authority over the project, the State of California EPA (Cal/EPA) Department of Toxic Substance Control, the State of California OSHA (Cal/OSHA), and other federal, state, county, and local agencies.
- During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts.
- Hazardous materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations.

Implementation of Section 1.1, Compliance and Intent, of EBMUD's Standard Construction Specification 02 83 13, Lead Hazard Control Activities, requires that handling, removal and disposal of lead-contaminated materials from the existing Dos Osos Reservoir site, if found, would comply with state and federal lead regulations.

EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes submittal of a Construction and Demolition Waste Disposal Plan (Section 1.3C) that:

- Requires measures for removing, handling, transporting, and disposing of any waste material (except liquid wastes addressed in the Water Control and Disposal Plan).
- Requires a sampling and analytical program for characterizing any waste material, as needed, prior to reuse, recycling or disposal.
- Identifies the disposal method for soil and the approved disposal site and includes written documentation that the disposal site will accept the waste. Prior to disposition of wastes, the Contractor must submit copies to EBMUD of waste profile forms and correspondence between the Contractor and the disposal facility. Prior to disposal of hazardous wastes, the Contractor must submit copies of the waste manifests to EBMUD and provide documentation that the waste hauler is regulated by the state to transport hazardous wastes.

Implementation of Section 1.3C, Construction and Demolition Waste Disposal Plan, of Standard Construction Specification 01 35 44 requires that lead-contaminated soil, if found on the existing Dos Osos Reservoir site, will be disposed of in a manner such that no water quality standard or waste discharge requirement violations occur as a result of accidental release of lead-contaminated soil into the environment.

Section 1.3B, Project Safety and Health Plan, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project and requires submittal of a Project Safety and Health Plan if actual, potential, or anticipated hazards include hazardous substances. The Project Safety and Health Plan:

- Designates a Project Health and Safety Representative and a qualified person to take air samples and measurements of known or suspected hazardous materials.
- Includes an Emergency Action Plan in the event of an accident that requires notifying any responsive agencies.

Also, Section 1.4A of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, will be incorporated into the Project and requires that all personnel who, as the result of work on the Project, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter. Implementation of Section 1.4A of EBMUD's Standard Construction Specification 01 35 24 ensures that if lead is encountered at the existing Dos Osos Reservoir site, workers will receive appropriate hazardous materials training.

Implementation of Section 1.3C, Construction and Demolition Waste Disposal Plan, of Standard Construction Specification 01 35 24 requires that established health and safety protocols will be followed regarding lead-contaminated soil, if found, at the existing Dos Osos Reservoir site.

In summary, because Section 9.0, Trench Spoils Field Management Practices, of EBMUD's Environmental Compliance Manual, EBMUD's Procedure 711, Hazardous Waste Removal, and EBMUD's Standard Construction Specification 02 83 13, Lead Hazard Control Activities, 01 35 44, Environmental Requirements, and 01 35 24, Project Safety Requirements, have been incorporated into the Project, and these practices require controls regarding the provision of site investigations for potentially hazardous materials, analysis and sampling of hazardous materials, characterization of hazardous materials, handling, containment, and disposal of lead during demolition activities, and incorporates established health and safety procedures regarding anticipated hazards, the Project impact related to creation of a significant hazard to the public or the environment through the accidental release of lead-contaminated soil to the environment during demolition of the existing Dos Osos Reservoir, a potential violation of water quality standards or waste discharge requirements, is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Asbestos. At the existing Dos Osos Reservoir, roofing materials installed in the late 1950s may contain asbestos. At the existing Dos Osos Pumping Plant, rehabilitation of the pump units within the existing pumping plant building may require the removal and replacement of electrical controls and mechanical equipment. Due to the age of the existing facility, asbestos may be released and encountered during rehabilitation of pumping plant components which could potentially violate water quality standards or waste discharge requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 9.0, Trench Spoils Field Management Practices, of EBMUD's Environmental Compliance Manual. Section 9.0 of EBMUD's Environmental Compliance Manual outlines procedures to be followed prior to and during projects to ensure that worker exposure to contaminants of concern is minimized and that spoils are disposed of properly. The Trench Spoils Field Management Practices require project site investigations, collection and analysis of soil, slurry and groundwater samples, if deemed necessary by initial site investigations, and database record searches, and, depending on the results of the sampling, advance soil, slurry and groundwater disposal arrangements. Implementation of requirements of Section 9.0 of the Environmental Compliance Manual will ensure that no water quality standard or waste discharge requirement violations occur as a result of accidental release of asbestos into the environment.

EBMUD's Procedure 711, Hazardous Waste Removal, has been incorporated into the Project, which defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. Procedure 711 outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests. Implementation of Procedure 711 requires proper characterization, handling and disposal of any asbestos encountered at the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites.

Section 1.1, Compliance and Intent, of EBMUD's Standard Construction Specification 02 82 13, Asbestos Control Activities, has been incorporated into the Project and includes the following provisions for handling, removal, containment, and disposal of asbestos-containing materials from the Project sites, if found:

- All labor, materials, facilities, equipment, services, employee training and testing, permits and agreements necessary to perform the asbestos removal shall be in accordance with the latest regulations from the U.S. EPA, OSHA, the Air Quality Management District with authority over the project, the Cal/EPA Department of Toxic Substance Control, Cal/OSHA, and other federal, state, county, and local agencies.
- During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts.
- Asbestos materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations.

Implementation of Section 1.1, Compliance and Intent, of EBMUD's Standard Construction Specification 02 82 13, Asbestos Control Activities, requires that handling, removal and disposal of asbestos from the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites, if encountered, will comply with state and federal asbestos regulations.

EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes submittal of a Construction and Demolition Waste Disposal Plan (Section 1.3C) that:

- Requires measures for removing, handling, transporting, and disposing of any waste material (except liquid wastes addressed in the Water Control and Disposal Plan).
- Includes a sampling and analytical program for characterizing any waste material, as needed, prior to reuse, recycling or disposal.
- Identifies the disposal method for soil and the approved disposal site and includes written documentation that the disposal site will accept the waste. Prior to disposition of wastes, the Contractor must submit copies to EBMUD of waste profile forms and correspondence between the Contractor and the disposal facility. Prior to disposal of hazardous wastes, the Contractor must submit copies of the waste manifests to EBMUD and provide documentation that the waste hauler is regulated by the state to transport hazardous wastes.

Implementation of Section 1.3C, Construction Waste and Disposal Plan, of Standard Construction Specification 01 35 44 requires that asbestos, if encountered on the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites, will be disposed of in a manner such that no water quality standard or waste discharge requirement violations occur as a result of accidental release of asbestos into the environment.

Section 1.3B, Project Safety and Health Plan, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project

and includes submittal of a Project Safety and Health Plan if actual, potential, or anticipated hazards include hazardous substances. The Project Safety and Health Plan:

- Designates a Project Health and Safety Representative and a qualified person to take air samples and measurements of known or suspected hazardous materials.
- Includes an Emergency Action Plan in the event of an accident that requires notifying any responsive agencies.

Implementation of Section 1.3B, Project Safety and Health Plan, of EBMUD's Standard Construction Specification 01 35 24 requires that established health and safety protocols will be followed regarding asbestos, if encountered, at the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites.

Also, Section 1.4A of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, will be incorporated into the Project and requires that all personnel who, as the result of work on the Project, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter. Implementation of Section 1.4A of EBMUD's Standard Construction Specification 01 35 24 ensures that if asbestos is encountered at the existing Dos Osos Reservoir or Dos Osos Pumping Plant sites, workers will receive appropriate hazardous materials training.

In summary, because Section 9.0, Trench Spoils Field Management Practices, of EBMUD's Environmental Compliance Manual, EBMUD's Procedure 711, Hazardous Waste Removal, and EBMUD's Standard Construction Specifications 02 82 13, Asbestos Control Activities, 01 35 44, Environmental Requirements, and 01 35 24, Project Safety Requirements, have been incorporated into the Project, and these practices achieve controls regarding the provision of site investigations for potentially hazardous materials, analysis and sampling of hazardous materials, characterization of hazardous materials, handling, containment, and disposal of asbestos-containing materials during demolition activities, and incorporate established health and safety procedures regarding anticipated hazards, the Project impact related to creation of a significant hazard to the public or the environment through the accidental release of asbestos to the environment during demolition of the existing Dos Osos Reservoir and rehabilitation of the existing Dos Osos Pumping Plant, a potential violation of water quality standards or waste discharge requirements, is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- c. **No Impact.** There are no existing or proposed schools within a quarter-mile of the Project sites.
- d. **No Impact.** The Project sites were checked against regulatory agency databases, such as Cal/EPA Department of Toxic Substances Control online the Envirostor Database which is compiled pursuant to Government Code Section 65962.5, for known hazardous material sites. None of the Project sites are listed on a hazardous materials site list.

- e. **No Impact.** The Project sites are not located within an airport land use plan or within two miles of a public airport, public-use airport or private airstrip.
- f. **No Impact.** The Project sites are not located within the vicinity of a private airstrip.
- g. **No Impact.** The Project would not affect the implementation of any emergency response or evacuation plan, because contract specifications will require the Contractor to maintain emergency roadway access at all times.
- h. **Less than Significant Impact.** All Project sites are located within the California Department of Forestry and Fire Protection's Very High Fire Hazard Severity Zones. All Project sites are located within the Moraga-Orinda Fire District (MOFD) boundaries and would be served by MOFD forces in the event of a fire emergency.

MOFD Station 45 (Battalion Headquarters), located at 33 Orinda Way in the City of Orinda, is approximately two miles east of all three Project sites. The East Bay Regional Park District Fire Department also has a fire station off of Lomas Cantadas, approximately 1.8 miles west of the new dual Dos Osos Reservoirs site, and is available for fire services if requested by the MOFD.

EBMUD emergency white hydrants are located at both the existing Dos Osos Pumping Plant and Dos Osos Reservoir sites. The emergency white hydrant at the existing Dos Osos Reservoir site is approximately 300 feet away from the new dual Dos Osos Reservoirs site. These hydrants will provide emergency water supply in the event of a fire at any of the Project sites. The existing Dos Osos Reservoir has a storage capacity of 0.24 MG and will serve as on-site water source available for fire protection at the existing and new dual Dos Osos Reservoirs sites.

Wildland fire is a potential risk at the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites due to the location of these sites where wildlands are adjacent to urbanized areas and where residences are intermixed with wildlands. The use of construction equipment and temporary storage of flammable materials could pose a wildland fire risk in the Project area. The time of greatest fire risk would be during the clearing phase of all Project components, when construction workers and equipment would be near vegetative fuels that could be highly flammable.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 24, Project Safety Requirements. Section 1.6, Fire Prevention and Protection, of this standard construction specification mandates that the site will be supplied and maintained with adequate firefighting equipment capable of extinguishing incipient fires. All work would comply with applicable federal, local, and state fire-prevention regulations, including MOFD Ordinance 16-02. MOFD Ordinance 16-02 adopts the 2016 California Fire Code and, by reference, the International Fire Code, 2015 edition, published by the International Code Council. Chapter 49 of the 2016 California Fire Code, Requirements for Wildland-Urban Interface Fire Areas, includes

provisions for wildfire protection building construction, hazardous vegetation and fuel management and defensible space. Chapter 33, Fire Safety during Construction and Demolition, includes requirements for fire reporting, access for firefighting, and portable fire extinguishers.

Because Section 1.6, Fire Prevention and Protection, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project and mandates that the site will be supplied and maintained with adequate firefighting equipment capable of extinguishing incipient fires and complies with applicable fire code regulations that include provisions for wildfire protection building construction, hazardous vegetation and fuel management, defensible space, fire reporting, access for firefighting, and portable fire extinguishers, the Project impact related to hazards resulting from wildland fires is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

IX. Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-site or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood plain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood plain structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a. Less than Significant Impact.** The two types of potential discharges associated with construction of the Project that could potentially violate water quality standards or waste discharge requirements are: release of potable water discharges (treated water) and stormwater discharges. The release of potable water discharges may impact water quality through the introduction of chlorinated drinking water to existing drainages. The release of stormwater discharges may impact water quality through stormwater runoff encounters with pollutants and contaminants that eventually are released to existing drainages. Both potable water and stormwater discharges have the potential to cause erosion and flooding along drainage pathways and at drainage outfalls. As discussed below, the EBMUD practices and procedures that have been incorporated into the Project ensure that there will be no significant violations of water quality standards or waste discharge requirements.

Potable Water Discharges. Potable water discharges typically fall into three categories: planned, unplanned, and emergency discharges.

Planned Discharges. Planned discharges are those associated with routine operation and maintenance activities that are scheduled in advance to fulfill statutory requirements and/or ensure reliable and safe drinking water. Typically, planned discharges are short-term discharges from definable projects where there are no other reasonable discharge alternatives and where controls may be implemented to minimize the discharge flow rate, volume, duration, and pollutants of concern. Examples of planned discharges include, but are not limited to: cleaning, dewatering/drainage, disinfecting, flushing, repairing, installing, and testing of pipelines, reservoirs, and hydrants.

Unplanned Discharges. Unplanned discharges are those caused by non-routine events and are difficult to control due to their unpredictable nature and location. They may be caused by natural factors (e.g., soil movement caused by landslides and fault creep, ground swelling during wet weather, soil corrosivity, pressure surges, or defective materials) or manmade factors (e.g., damage by contractors or other utilities). Examples of unplanned discharges include, but are not limited to: pipeline breaks, service leaks, and overflows of temporary storage vessels.

Emergency Discharges. Emergency discharges are the result of firefighting, unauthorized hydrant openings (accidental damage by vehicles or vandalism), or natural or manmade disasters (e.g., earthquakes, floods, wildfires, accidents, terrorist actions).

Two planned discharges associated with the construction of the Project include the draining of the existing Dos Osos Reservoir, required before demolition, and the discharge of superchlorinated water upon disinfection of new pipelines required for the new dual Dos Osos Reservoirs. Though these are planned discharges, unanticipated discharges (both unplanned and emergency) also have the potential to occur from pipeline breaks and overflows of temporary storage vessels. Both planned and unplanned potable water discharges could potentially violate water quality standards or waste discharge requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 3.0, Water Quality Protection, of EBMUD's Environmental Compliance Manual. Section 3.0 of the Environmental Compliance Manual requires EBMUD to comply with the National Pollutant Discharge Elimination System (NPDES) permit issued by the Regional Water Quality Control Board (RWQCB) for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system and requires:

- For planned discharges, EBMUD must submit a site-specific Discharge Plan to the RWQCB at least one week in advance of the discharge with copies to interested parties such as flood control agencies and downstream jurisdictions.
- For unplanned discharges, BMPs (e.g., sediment controls) must be implemented to alleviate the discharge as soon as practicable. EBMUD must also submit an annual report to the RWQCB summarizing the date, address, estimated flow rate, and BMPs implemented for each unplanned discharge.

EBMUD BMPs

As described in Section 3.0 of the Environmental Compliance Manual, EBMUD employs both traditional Source Control BMPs (e.g., operational or administrative practices to reduce potential pollutants at the source) and Treatment Control BMPs (e.g., treatment to minimize pollutants prior to discharge) in managing its water discharges.

Source Control BMPs

Typical source controls include: isolating a system for several days and/or reducing or eliminating chemical dosages to allow the chlorine residual and pH levels to naturally comply with regulatory limits; transferring the contents via a truck to a wastewater treatment plant; and minimizing the flow rate and/or volume to reduce potential sedimentation and erosion effects.

Treatment Control BMPs to Minimize Chlorine Residual

EBMUD's water treatment process involves the use of chloramine, which is a more stable and longer lasting disinfectant than chlorine alone. Chloramines are required for making the water safe for human consumption but is fatal to fish. Thus, potable water discharges must be dechlorinated before being released into a storm drain or receiving water. EBMUD uses the following BMPs for removing chlorine residual:

- Dechlorination of Potable Water Discharges – Tablet Method. This method describes the dechlorination procedures most typically employed, where sodium sulfite tablets are placed either into diffusers (which are attached to hoses or hydrants) or mesh strips or mats (which are placed into the flow of water).
- Dechlorination of Potable Water Discharges – Liquid Method. This method describes the dechlorination procedures used at new pipeline installations, where calcium

thiosulfate is dripped into the flow of water or used in a batch treatment (e.g., water tanker). The calcium thiosulfate concentration and flow rate must be calculated to ensure that the higher chlorine residual, required by drinking water regulations for disinfection purposes, is adequately treated.

Treatment Control BMPs to Minimize Sediment

To prevent erosion and water quality issues from the water discharges and entrainment of sediment into the discharges, EBMUD employs the following sediment control BMPs:

- **Sediment Control during Open Channel Potable Water Discharges.** This method describes procedures to minimize the amount of sediment discharged during open channel discharges. Sediment control is accomplished by placing mesh fabric bags containing pea gravel perpendicular to the flow to form dams between the discharge source and the point at which the discharge flow enters a storm drain or receiving water. The dams cause the flow to slow and pond in front of the bags, allowing some portion of the sediment entrained in the flow to settle out. A dam and filtering mat will be built around and over the first storm drain inlet impacted by the flow, if drain inlets are affected by the discharge.

Because EBMUD has incorporated Section 3.0 of its Environmental Compliance Manual into the Project, planned, unplanned, and emergency potable water discharges required for the Project will be captured, treated, and discharged according to RWQCB requirements, and prescribed EBMUD BMPs will be employed to minimize impacts to water quality at the source of discharge and before release of discharge to the drainage system or downstream waterbodies. Implementation of the requirements of Section 3.0 of the Environmental Compliance Manual will ensure that no water quality standard or waste discharge requirement violations occur as a result of potable water discharges.

In addition, EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, includes submittal of a Water Control and Disposal Plan (Section 1.3B) that includes the following provisions to achieve controls for all liquid discharges:

- The Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.
- The Water Control and Disposal Plan shall include the estimated flow rate and volume of all proposed discharges to surface waters, including discharges to storm drains. All receiving waters shall be clearly identified.
- All drinking water system discharges shall be dechlorinated (e.g., sodium sulfite tablets or liquid calcium thiosulfate) to achieve a total chlorine residual concentration of < 0.1 mg/L measured with a handheld chlorine meter utilizing a U.S. EPA-approved method.

- Effective erosion and sediment controls (e.g., straw wattles, pea gravel filter bags) shall be used to achieve a visual turbidity concentration of ≤ 100 nephelometric turbidity unit (NTU) by implementing BMPs which meet EBMUD's minimum standards or better.
- The pH level of any discharges shall not be below 6.5 nor elevated above 8.5. If there is potential for discharges to be below 6.5 or above 8.5, the Contractor shall employ pH adjustment BMPs to ensure discharges are within the range of 6.5 and 8.5. The Contractor shall conduct onsite field measurements for pH per quality assurance and quality control (QA/QC) protocols that conform to U.S. EPA guidelines or procedures approved by the American Water Works Association.
- Describe measures that will be used for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water or other liquid that has been in contact with any interior surfaces of EBMUD facilities.
- The Contractor shall provide the Engineer with containment, handling, treatment and disposal designs and a sampling and analysis plan for approval before the start of construction.

Implementation of Section 1.3B, Water Control and Disposal Plan, of EBMUD's Standard Construction Specification 01 35 44 requires proper control, treatment and disposal of planned and unplanned liquid discharges. The required components of the Water Control and Disposal Plan of Section 1.3B will ensure that no water quality standard or waste discharge requirement violations occur as a result of potable water discharges.

In addition, Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44 requires submittal of a Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during Project construction. The plan shall include:

- A list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products.
- Measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills.
- Phone numbers for notifying appropriate regulatory agencies and EBMUD.
- Identification of spill-related worker and public health and safety issues for each known hazardous substance used on the jobsite.
- Spill control and cleanup procedures.

Implementation of Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44 requires a Spill Prevention and Response Plan that will prevent and control the accidental release of potable water during the construction of the Project.

As described above, the disinfection of new pipelines is considered a planned discharge. Section VIII, Hazards and Hazardous Materials, discusses in great detail how planned and unplanned discharge and release of superchlorinated water after testing and disinfection of new pipelines could potentially violate water quality standards or waste discharge requirements. Incorporation of EBMUD policies and procedures discussed in Impact Discussion Section a) of Section VIII ensures that the Project impact related to creation of a significant hazard to the public or the environment through the routine disinfection of potable water pipelines using chlorinated water is less than significant.

Because Section 3.0, Water Quality Protection, of EBMUD's Environmental Compliance Manual, and Section 1.3B, Water Control and Disposal Plan, and Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and the practices require controls regarding the discharge, treatment and disposal of liquid discharges and prevent the accidental release of hazardous materials during Project construction, the Project impact related to potential violation of water quality standards or waste discharge requirements will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Stormwater Discharges. Construction activities for the Project, including clearing and grubbing activities, preparation of construction staging areas, and demolition of the existing Dos Osos Reservoir, would expose soils to the elements (wind and rain). Soils may be entrained in stormwater runoff, potentially affecting water quality in receiving waters. Improper use, storage, or disposal of fuels, lubricants, and other chemicals used in construction could also result in the conveyance of contaminants to the receiving waters via stormwater runoff. Thus, stormwater discharges could potentially violate water quality standards or waste discharge requirements.

EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project. Section 1.3A of EBMUD's Standard Construction Specification 01 35 44 requires submittal of an SWPPP even if the Project does not require a CGP, and requires that the SWPPP shall conform to all SWRCB requirements for a CGP SWPPP. The SWPPP requires:

- Measures (e.g., typical EBMUD source and treatment BMPs described above) to be implemented that prevent the discharge of contaminated stormwater runoff from the Project site. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, liquid discharges with pH less than 6.5 or greater than 8.5, and chlorine residuals in potable water discharges, and all other contaminants known to exist at the Project site.

Because Section 1.3A, Storm Water Management, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, which requires controls such as dechlorination tablets, rock filter bags and drain inlet protection, to prevent the discharge of contaminated storm water runoff from the Project site, the Project impact related to the release of contaminated stormwater runoff, a

potential violation of water quality standards or waste discharge requirements, will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- b. No Impact.** Construction of the new dual Dos Osos Reservoirs would not substantially deplete groundwater supplies or recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Stormwater runoff from the new dual Dos Osos Reservoirs site would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. All stormwater runoff from the impervious surfaces (dual Dos Osos Reservoirs roofs and pad) would be allowed to infiltrate over native soils to groundwater supplies or recharge. The new dual Dos Osos Reservoirs overflow and drain lines would connect to the existing Dos Osos Reservoir drain line that outfalls at a rip-rap-protected energy dissipater approximately 450 feet south of the existing Dos Osos Reservoir.

The new access road would be cross-sloped such that stormwater runoff would infiltrate to native soils immediately adjacent to the access road over watershed lands. Thus, all stormwater runoff from proposed impervious surfaces will be available for groundwater recharge, and any surface runoff will be managed to maintain the status quo commensurate with infiltration (from precipitation), groundwater, and recharge.

The rehabilitation of the existing Dos Osos Pumping Plant would result in no net change of impervious surface area. Also, the demolition of the existing Dos Osos Reservoir will decrease the total impervious area at the existing reservoir site by removing the reservoir structure and roof. Thus, no substantive change in infiltration rates or groundwater recharge would occur during operation of the rehabilitated Dos Osos Pumping Plant or at the site of the existing Dos Osos Reservoir post-demolition.

- c. and d. Less than Significant Impact.** The Project sites lie within the San Pablo Creek watershed, which covers about 44 square miles in CCC. The San Pablo Creek watershed includes the cities of Orinda, San Pablo, and Richmond as well as parts of unincorporated CCC. San Pablo Creek originates in the City of Orinda, flows northwest along the eastern edge of the Oakland Hills to the San Pablo Reservoir, and ultimately discharges to the San Francisco Bay near the City of Richmond. The San Pablo Creek watershed supports 10,909 acres of EBMUD-protected watershed land, including the Siesta Valley, Gateway, and Briones watersheds.

No wetlands, waters or riparian areas under the jurisdiction of the U.S. Army Corps of Engineers, RWQCB, or CDFW occur within the Project sites. The San Pablo Creek is approximately 0.9 miles from the new dual reservoirs site. The nearest drainage to the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites is an ephemeral unnamed drainage in the headwaters of the San Pablo Creek watershed. This tributary drainage, located approximately 200 feet to the southeast of the existing Dos Osos Reservoir and approximately 500 feet northeast of the new dual Dos Osos Reservoirs site, connects to an underground segment of San Pablo Creek about a mile downstream at the Orinda Village shopping center located on Camino Pablo approximately 2,000 feet north of Highway 24.

Long-Term Drainage Pattern Impacts. At the existing Dos Osos Pumping Plant, the rehabilitation of the pumping plant will not alter the existing drainage pattern of the site; therefore, there will be no alteration of the existing drainage pattern of the site area in a manner which would: a) result in substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site.

At the existing Dos Osos Reservoir site, the demolition of the existing reservoir will remove the impervious reservoir and roof from the site and allow infiltration of stormwater into the footprint area of the removed reservoir. Over the remaining impervious portions of the existing reservoir site, no alteration in drainage pattern would occur, and stormwater runoff would continue to be diverted to existing storm drains and outfalls along Los Norrabos; therefore, there will be no alteration of the existing drainage pattern of the site area in a manner which would: a) result in substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site.

At the new dual Dos Osos Reservoirs site, the new dual reservoirs and associated pad would create a new impervious area totaling less than 10,000 square feet. Stormwater runoff from the new dual reservoirs site would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. All stormwater runoff from the impervious surfaces (dual reservoir roofs and pad) would be allowed to infiltrate over native soils. Natural drainage from the surrounding slopes will divert stormwater runoff ultimately to the same existing drainage pathways that conveyed stormwater runoff before dual reservoirs construction; therefore, there will be no alteration of the existing drainage pattern of the site area in a manner which would: a) result in substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site.

Short-Term Construction Drainage Pattern Impacts. During construction, short-term alterations in drainage patterns, at both the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs, sites may occur.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. As described in Impact Discussion a) above, Standard Construction Specification 01 35 44 includes Section 1.3A, which requires submittal of an SWPPP, and Section 1.3B, which requires a Water Control and Disposal Plan.

Because Section 1.3A, Storm Water Management, and Section 1.3B, Water Control and Disposal Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and the required SWPPP and Water Control and Disposal Plans require controls regarding liquid discharges and storm water runoff from the Project site, short-term Project impacts related to alteration of the existing drainage pattern of the site area during construction, in a manner which would: a) result in

substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site, will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

e. and f. Less than Significant Impact.

Long-Term Runoff Impacts. At the existing Dos Osos Pumping Plant site, rehabilitation of existing pump units within the pumping plant building will not result in any changes outside the building; therefore, no sources or contribution to runoff would be generated which would: a) exceed the capacity of existing or planned storm water drainage systems, or b) provide substantial additional sources of polluted runoff.

At the existing Dos Osos Reservoir site, the demolition of the existing reservoir will remove the impervious reservoir and roof from the site and allow infiltration of stormwater into the footprint area of the removed reservoir; therefore, infiltration would increase, and surface runoff contributions may decrease. Over the remaining impervious portions of the existing reservoir site, no alteration in drainage pattern would occur, and stormwater runoff would continue to be diverted to existing storm drains and outfalls along Los Norrabos; therefore, there will be no creation or contribution of runoff water which would: a) exceed the capacity of existing or planned stormwater drainage systems, or b) provide substantial additional sources of polluted runoff.

At the new dual Dos Osos Reservoirs site, the new dual reservoirs and associated pad would create a new impervious area totaling less than 10,000 square feet. Stormwater runoff from the new dual reservoirs site would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. All stormwater runoff from the impervious surfaces (dual reservoir roofs and pad) would be allowed to infiltrate over native soils. Drainage from the surrounding slopes will divert stormwater runoff ultimately to the same existing natural drainage pathways that conveyed stormwater runoff before dual reservoirs construction. Also, long-term operations at the dual reservoirs site will not include long-term storage of potential pollutants or serve as long-term parking; therefore, there will be no creation or contribution of runoff water which would: a) exceed the capacity of existing or planned stormwater drainage systems, or b) provide substantial additional sources of polluted runoff.

Short-Term Construction Runoff Impacts. During construction at the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites, short-term creation or contribution of runoff water could occur which would provide substantial additional sources of polluted runoff.

Both sites are situated upslope from the ephemeral tributary drainage (approximately 500 feet northeast of the new dual reservoirs site, as described above), and the accidental release of hazardous materials such as oil, grease, or fuel during construction could potentially degrade surface water quality.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 3.0, Water Quality Protection, of the EBMUD Environmental Compliance Manual and EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements.

As described in Impact Discussion a) above, Section 3.0 of the Environmental Compliance Manual describes how EBMUD complies with the NPDES permit issued by the RWQCB for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system. Because Section 3.0, Water Quality Protection, of EBMUD's Environmental Compliance Manual has been incorporated into the Project, planned, unplanned, and emergency potable water discharges required for the Project will be captured, treated, and discharged according to RWQCB requirements.

Also, as described in Impact Discussion a) above, Standard Construction Specification 01 35 44 includes: Section 1.3A which requires submittal of a SWPPP, Section 1.3B which requires a Water Control and Disposal Plan, and Section 1.3D which requires a Spill Prevention and Response Plan. These incorporated components of Specification 01 35 44 will ensure that runoff from the Project would not contribute substantial additional sources of polluted runoff.

In addition to the EBMUD practices and procedures listed above, Section 1.1B, Site Activities, of EBMUD's Standard Construction Specification 01 35 44, has been incorporated into the Project. Section 1.1B states that no debris, including, but not limited to, demolition material, treated wood waste, stockpile leachate, soil, silt, sand, bark, slash, sawdust, asphalt, rubbish, paint, oil, cement, concrete or washings thereof, oil or petroleum products, or other organic or earthen materials from construction activities shall be allowed to enter into storm drains or surface waters or be placed where it may be washed by rainfall or runoff outside the construction limits. Implementation of Section 1.1B will also ensure that runoff from the Project would not contribute substantial additional sources of polluted runoff.

Because EBMUD's Environmental Compliance Manual, Section 3.0, Water Quality Protection, and Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and the practices achieve controls regarding the discharge, treatment and disposal of liquid discharges, prevent the discharge of contaminated stormwater runoff from the Project site, and prevent the accidental release of hazardous materials during Project construction, the Project impact related to creation or contribution of runoff water which would provide substantial additional sources of polluted runoff will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

g. and h. No Impact. The Project does not propose construction of any housing, and the Project sites are not located within a 100-year flood plain. The nearest mapped 100-year flood plain is approximately one mile away from the Project sites at the San Pablo Creek on the east side of Camino Pablo in Orinda (Federal Emergency Management Agency Flood

Insurance Rate Map [FIRM], Contra Costa County, California FIRM 06013C0264F, June 16, 2009).

- i. Less than Significant Impact.** The Project would not expose people or structures to significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Complete and sudden failure of the new dual Dos Osos Reservoirs and associated pipelines due to an earthquake or other condition is extremely unlikely due to the application of standard EBMUD practices, procedures and current engineering standards for reservoir and pipeline construction that dictate engineering requirements for water facilities and seismic design. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Engineering Standard Practice 512.1, Water Main and Services Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements. These two Engineering Standard Practices dictate basic requirements for water pipelines and design standards for pipelines to withstand seismic hazards. Also, design of the new dual reservoirs will adhere to the EBMUD Reservoir Design Guide (EBMUD, 2014), which details design guidelines that apply to the design and construction of steel-bolted tanks. Section 4.2.1, Codes and Design Standards, of EBMUD's Reservoir Design Guide lists the building codes and design references to be used during construction of steel-bolted tanks to ensure compliance with current engineering practice and standards.

Because the new dual Dos Osos Reservoirs and associated pipelines will be built in compliance with EBMUD standard practices and current engineering practices and building codes, the potential for exposure of people or structures to significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of the reservoirs is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Regular inspections would alert EBMUD of potential leakage points, and appropriate remediation would be applied. Steel reservoirs are designed with an underdrain system to monitor leakage.

- j. No Impact.** The Project facilities would not be subject to inundation by seiche or tsunami, as the Project sites are located inland away from large bodies of water.

X. Land Use and Planning

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a. No Impact.** The Project will not physically divide an established community, because the rehabilitation of pump units within the existing Dos Osos Pumping Plant occurs within an existing structure, and the existing Dos Osos Reservoir and new dual reservoirs sites lie at the furthest extent of the El Toyonal neighborhood and at the perimeter of EBMUD watershed lands – at the boundary between an established rural residential neighborhood and open hillslopes and grasslands.
- b. Less than Significant Impact.** Pursuant to Government Code Sections 53091(d) and (e), EBMUD is not subject to the building and zoning ordinances of local jurisdictions for projects involving the production, generation, storage, treatment, or transmission of water. Nonetheless, EBMUD strives to consider the regulations and ordinances of local jurisdictions during construction where feasible and not contrary to its public purpose and responsibilities.

The existing Dos Osos Pumping Plant and existing Dos Osos Reservoir are currently located within areas designated for residential use in the City of Orinda’s General Plan. The proposed in-situ rehabilitation of the existing Dos Osos Pumping Plant will not change the current use of the pumping plant site, and demolition of the existing Dos Osos Reservoir will leave the existing reservoir site in a more natural state. As such, rehabilitation of the Dos Osos Pumping Plant and demolition of the Dos Osos Reservoir will not cause any significant impacts related to land use.

The new dual Dos Osos Reservoirs will be located on EBMUD-owned watershed lands designated as “watershed” land use in the Contra Costa County General Plan. The new dual Dos Osos Reservoirs will occupy less than a quarter of an acre on watershed lands, preserving watershed lands and open space to the extent possible while allowing for replacement of an aging water facility and improving level of service to potable water customers. Accordingly, construction of the new dual reservoirs will not cause any significant impacts related to land use.

- c. No Impact.** As discussed in Section IV, Biological Resources, Impact Discussion f), the Project does not conflict with any applicable habitat conservation plan or natural community conservation plan. The new dual reservoirs site is within the boundaries of the watershed lands HCP, which covers 28,000 acres of watershed lands in the San Francisco East Bay Area owned by EBMUD. The watershed lands HCP covers activities that EBMUD must undertake to meet its various obligations as a public entity to provide water service to its customers in the East Bay. EBMUD activities covered under this HCP include programs for water quality, biodiversity, forestry, livestock grazing, agricultural operations, fire and fuel management, recreation and developed trails, and the storage and removal of trench spoils.

XI. Mineral Resources

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a. **No Impact.** No mineral deposits of economic significance are known to exist within the Project sites.
- b. **No Impact.** There are no locally important mineral resources delineated on a local general plan, specific plan or other land use plan; therefore, the Project will not result in the loss of availability of locally important mineral resources.

XII. Noise

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

The noise discussion is based upon the Dos Osos Reservoir Replacement Project Noise and Vibration Analysis conducted by EBMUD (Dos Osos Noise and Vibration Analysis, January 2017). The analysis provides an evaluation of the potential significance of noise- and vibration-related impacts that would result from the Project at sensitive receptors near each Project site. Sensitive receptors are defined as population groups more sensitive to noise that are associated with land uses such as residential areas, hospitals, schools, child care facilities, senior facilities, libraries, churches, and parks. The projected construction and operational noise levels at nearby sensitive receptors were compared against specific noise criteria. Potential construction-related vibration impacts at structures near each Project site area were also analyzed.

For the purposes of this MND and consistent with Appendix G, Environmental Checklist Form, of the CEQA Guidelines, the Project is considered to have a significant impact if it would substantially increase the specific noise levels for adjoining areas. In completing the noise impact analysis, EBMUD considered both local noise ordinances and the speech interference criterion recognized by the EPA and regularly used to assess the significance of potential noise impacts.

Local Noise Ordinances. All sensitive receptors to the Project sites are located in the City of Orinda. Project-related noise increases and proposed construction hours were compared to the noise level and construction time limits contained in the City of Orinda’s noise ordinance. Those standards are discussed in section a) and found in Table 3.2, below. The new dual Dos Osos Reservoirs site is located in unincorporated CCC, which does not have a specific noise ordinance. However, Policy 11-8 of the CCC General Plan Noise Element states, “Construction activities shall be concentrated during the hours of the day that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods.” Because the City of Orinda noise ordinance is more stringent than the CCC General Plan policy, only the City of Orinda’s noise ordinance is discussed in the noise impact analysis.

Speech Interference. Speech interference is an indicator of impact on typical daytime and evening activities. A speech interference criterion, in the context of impact duration and time of day, was used to identify “substantial” increases in noise from temporary construction activities. Noise peaks generated by construction equipment could result in speech interference in adjacent buildings if the noise level in the interior of the building exceeds 45 to 60 dBA.⁴ A typical

⁴ Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an

building can reduce noise levels by 25 dBA with the windows closed (U.S. EPA, 1974). This noise reduction could be maintained only on a temporary basis in some cases, since it assumes windows must remain closed at all times. Since a typical building can reduce noise levels by 25 dBA (with closed windows), an exterior noise level of 70 dBA at receptors would maintain an acceptable interior noise environment of 45 dBA.

While EBMUD considered project noise impacts in relation to the City of Orinda noise ordinance, ultimately, EBMUD is not subject to building and land use zoning ordinances for projects involving the transmission of water (Government Code Section 53091). In addition, EBMUD determined that the EPA speech interference criterion described above provides a reasonable threshold for determining the significance of construction noise impacts. For that reason, in the noise analysis, noise levels greater than 70 dBA at receptors would constitute a significant impact.

a. Less than Significant Impact. Local noise issues are addressed by assessing consistency with applicable noise ordinance standards or general plan guidelines (if there is no noise ordinance). Noise ordinances regulate such sources as mechanical equipment and amplified sounds as well as prescribe hours of heavy equipment operation. Pursuant to California Government Code Section 53091, EBMUD, as a local agency and utility district serving a broad regional area, is not subject to building and land use zoning ordinances (such as noise ordinances) for projects involving facilities for the production, generation, storage or transmission of water. It is, however, the practice of EBMUD to work with local jurisdictions and neighboring communities during project planning and to conform to local environmental protection policies to the extent feasible. Noise standards from the City of Orinda's noise ordinance are shown in Table 3.2.

ambient sound. The decibel (dB) scale is used to quantify sound intensity. Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is factored into sound descriptions in a process called "A-weighting," expressed as "dBA." The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. A 10-dBA increase in the level of a continuous noise represents a perceived doubling of loudness. The noise levels presented herein are expressed in terms of dBA, unless otherwise indicated.

TABLE 3.2
City of Orinda Ordinance Time Limits^a and Noise Standards

Construction Time Limits			Ordinance Noise Limits for Various Activities in Single-Family Residential Zones (dBA) ^b	
			Day (L _{eq})	Night (L _{eq})
Weekdays	Saturdays	Sundays	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
8 a.m. to 6 p.m.	10 a.m. to 5 p.m.	Not Allowed	60 (Ldn) ^c	55

- a. *Time Limits: Orinda Municipal Code, Chapter 17.39.3, specifies construction time limits. Operation of heavy construction equipment is not allowed on Saturdays or Sundays. Noise Limits: To account for duration and timing, the Orinda Municipal Code, Chapter 17.15.2 stipulates a noise limit of 60 dBA (Ldn) in residential districts. The ordinance further reduces noise levels by five dB between 10 p.m. and 7 a.m. relative to the 60 Ldn. Noise that is produced for cumulative periods of no more than five minutes and one minute in any hour may exceed the standards by five dB and ten dB, respectively. Presumably, these noise levels would be limited to 65 and 70 dBA, respectively. Title 17, Section 17.39.9 of Orinda Municipal Code, specifies a maximum noise level of 45 dBA for mechanical equipment which is permanently affixed to a structure or on the ground (but not limited to air conditioners, pool equipment, spa equipment), except for emergency backup power generators.*
- b. *Time variations in noise exposure are typically expressed in terms of a steady-state energy level (called L_{eq}) that represents the acoustical energy of a given measurement. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, for planning purposes, an artificial dBA increment is added to “quiet time” noise levels to form a 24-hour noise descriptor called the day-night noise level Ldn). Ldn adds a 10-dBA penalty to all nighttime noise events between 10:00 p.m. and 7:00 a.m.*
- c. *Construction activities are exempt from the daytime noise limits if they occur during the construction time limits specified in the ordinance.*

In general, the City of Orinda noise ordinance stipulates a noise limit of 60 dBA (Ldn) during the day, and 55 dBA (Ldn) during nighttime hours. However, construction activities that occur Monday through Friday between the hours of 8 a.m. and 6 p.m. and on Saturdays between 10 a.m. and 5 p.m. are exempt from these noise restrictions.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 14 00, Work Restrictions. Section 1.4, Work Hours, of this standard construction specification includes minimization measures for restricting hours of construction equipment, including:

- Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday.
- Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours (between 9:00 a.m. and 4:00 p.m.).

Section 1.8, Construction Noise, of EBMUD’s Standard Construction Specification 01 14 00, Work Restrictions, also includes minimization measures for restricting hours of construction equipment, including:

- Noise-generating activities greater than 90 dBA (impact construction such as concrete

breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.

During construction, critical water service outages, other emergencies, and special situations requiring work outside of the City of Orinda ordinance construction daytime work hour limits would be rare, and though EBMUD will comply with the City of Orinda ordinance when feasible, EBMUD is not subject to the ordinance (as explained above). In addition, as described in Section d) below, noise generated by construction activities for the Dos Osos Pumping Plant rehabilitation, new dual Dos Osos Reservoirs construction, and existing Dos Osos Reservoir demolition construction phases is not expected to exceed the speech interference criterion. Thus, even at times when construction may occur outside of the construction windows set forth in the City of Orinda ordinance, nearby receptors would not be expected to experience substantial noise-related impacts.

Because Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, has been incorporated into the Project, which would limit construction activities work hours, and because construction activity noise levels would fall below the speech interference criterion, impacts would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- b. Less than Significant Impact.** Vibrations caused by construction activities can be interpreted as energy transmitted in waves through the soil mass. These energy waves generally dissipate with distance from the vibration source (e.g., pile driving or sheetpile driving). Since energy is lost during the transfer of energy from one particle to another, vibration that is distant from a source is usually less perceptible than vibration closer to the source. However, actual human and structure response to different vibration levels is influenced by a combination of factors, including soil type, distance between source and receptor, duration, and the number of perceived events. If great enough, the energy transmitted through the ground as vibration can result in structural damage. To assess the potential for structural damage associated with vibration, the vibratory ground motion in the vicinity of the affected structure is measured in terms of peak particle velocity (PPV) in the vertical and horizontal directions (vector sum), typically in units of inches per second (in/sec). A freight train passing at 100 feet can cause vibrations of 0.1 in/sec PPV, while a strong earthquake can produce vibration in the range of 10 in/sec PPV.

There are no local, state, or federal vibration impact criteria that are applicable to this Project. The California Department of Transportation uses a vibration limit of 0.5 in/sec PPV for buildings designed to modern engineering standards. EBMUD has successfully applied the 0.5 in/sec PPV standard criteria established to evaluate the risk for cosmetic or structural damage to buildings with no known adverse impacts.

Table 3.3 provides a summary of key construction activities by project phase for the new dual Dos Osos Reservoirs and existing Dos Osos Reservoir demolition construction phases and shows the highest vibration levels associated with different phases of the Project, given the distance between the construction sites and the nearest sensitive receptors. Construction

activities at the existing pumping plant site will not include equipment that will generate excessive ground-borne noise levels.

**TABLE 3.3
Vibration Analysis by Construction Phase³**

Project Site	Closest Sensitive Receptor	Construction Hours	Major Construction Activities	Duration (Weeks)	Greatest Vibration at 25 feet (in/sec) ¹	Distance to Closest Sensitive Receptor (feet)	Projected Vibration at Sensitive Receptor during Key Construction Activities (dBA) ²	Vibration Limit Criterion (in/sec PPV)	Criterion Exceeded?
Existing Reservoir Demolition	9 Los Norrabos	8 a.m. to 6 p.m.	Drain Reservoir	1	NA	160	NA	0.5	No
			Demolish Reservoir Structures	2	0.089		0.005		No
			Demolish Reservoir Concrete	1	0.089		0.005		No
			Demolish Underground Piping	1	0.089		0.005		No
			Backfill	2	0.21		0.013		No
			Site Restoration	1	0.21		0.013		No
New Dual Reservoirs Construction	9 Los Norrabos	8 a.m. to 6 p.m.	Mobilization	1	0.089	340	0.002	0.5	No
			Excavation/Site Work	7	0.089		0.002		No
			Retaining Wall Construction	5	0.089		0.002		No
			Dual Reservoirs Construction	12	0.21		0.004		No
			Landscaping/Site Restoration	5	0.21		0.004		No

1. *Vibration Source Levels for Construction Equipment, Federal Transit Administration. 2006, Transit noise and vibration impact assessment. Table 12-2. FTA-VA-90-1003-06. Office of Planning and Environment, Washington, D.C., prepared by Harris Miller & Hanson, Inc., Burlington, MA.*
2. *Federal Transit Administration. 2006, Transit noise and vibration impact assessment. Section 12.2.1, Quantitative Construction Vibration Assessment Methods. Damage Assessment. FTA-VA-90-1003-06. Office of Planning and Environment, Washington, D.C., prepared by Harris Miller & Hanson, Inc., Burlington, MA.*
3. *Existing Pumping Plant Rehabilitation not listed in table because construction activities at the existing pumping plant site will not include equipment that will generate excessive ground-borne noise (vibration) levels.*

The new dual Dos Osos Reservoirs construction and existing Dos Osos Reservoir demolition Project phases would not result in exposure of persons to or generation of excessive ground-borne vibration levels, because each of the above construction phases are at locations far enough away from any nearby structures to not approach the 0.5 in/sec PPV criterion. None of the Project phases would experience excessive ground-borne noise levels at sensitive receptors near each Project site; therefore, impacts from exposure to or generation of excessive ground-borne vibration or ground-borne noise levels are less than significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Sections 3.5 and 3.6 of this standard construction specification include the following provisions for vibration control of construction equipment:

- Limit surface vibration to no more than 0.5 in/sec PPV, measured at the nearest residence or other sensitive structure.
- Upon homeowner request, and with homeowner permission, the District will conduct preconstruction surveys of homes, sensitive structures and other areas of concern within 15 feet of continuous vibration-generating activities (i.e., vibratory compaction). Any new cracks or other changes in structures will be compared to preconstruction conditions and a determination made as to whether the proposed Project could have caused such damage. In the event that the Project is demonstrated to have caused the damage, the District will have the damage repaired to the pre-existing condition.
- If impact equipment is used, the Contractor is responsible for taking appropriate measures, including but not limited to the following:
 - Hydraulically or electrically powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about ten dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of five dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible.
 - Impact construction, including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers, etc., shall be limited to the daytime hours specified in Standard Construction Specification 01 14 00 (see below for discussion).
 - Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings.
 - Utilize noise control blankets around the major noise sources to reduce noise emission from the site.
 - Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example.
 - Limit the noisiest phases of construction to ten workdays at a time, where feasible.

- Notify neighbors/occupants within 300 feet of Project construction at least 30 days in advance of extreme noise-generating activities about the estimated duration of the activity.
- Noise monitoring shall be conducted periodically during noise-generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to the Engineer.

Implementation of Sections 3.5, Vibration Control, and 3.6, Noise Control, of Standard Construction Specification 01 35 44 will require vibration controls for construction equipment and provide for preconstruction surveys if necessary.

Section 1.4 of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, restricts the hours impact construction equipment can be used on site, including the following provisions:

- Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday.
- Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours (between 9:00 a.m. and 4:00 p.m.).

Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, also includes minimization measures for restricting hours of construction equipment, including:

- Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.

Implementation of Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00 will limit construction activity work hours, including the hours when impact equipment can be used on site.

Because the new dual Dos Osos Reservoirs construction and existing Dos Osos Reservoir demolition Project phases are at locations far enough away from any nearby structures such that vibration levels would not exceed the 0.5 in/sec PPV criterion, and because Sections 3.5, Vibration Control, and 3.6, Noise Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, and Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, have been incorporated into the Project, and these sections require vibration controls for construction equipment and restrict construction activity work hours, the Project impacts from exposure to or generation of excessive ground-borne vibration or ground-borne noise levels are less than significant.

- c. No Impact.** No substantial permanent increase in noise is anticipated at the three Project sites. At the new dual Dos Osos Reservoirs site, there are no electrical or mechanical (pumping) facilities; therefore, typical reservoir operations would not generate noise above ambient levels. At the existing Dos Osos Pumping Plant, existing electrical and mechanical equipment within the existing pumping plant building would be upgraded with new electrical and mechanical equipment, and the upgraded equipment would not increase noise levels above existing pumping plant noise levels; noise levels would likely decrease due to advances in electrical and mechanical design since 1968, when the original pumping plant was constructed. The existing Dos Osos Reservoir will be demolished and removed, so no future long-term operations will occur at the existing reservoir site. There is no impact, because the long-term operation of proposed facilities will not change from the current operation and will not produce a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.
- d. Less than Significant Impact.** Construction activities associated with the Project would result in temporary noise increases at sensitive receptors near the three Project sites. Sensitive receptors are defined as population groups more sensitive to noise that are associated with land uses such as residential areas, hospitals, schools, child care facilities, senior facilities, libraries, churches, and parks. The projected construction and operational noise levels at nearby sensitive receptors were compared against specific noise criteria.

Construction noise levels would fluctuate at any given receptor depending on the type of project, construction phasing, equipment type/duration of use, distance between the noise source and receptor, and the presence or absence of barriers between the noise source and receptor. Typical construction equipment generates noise levels ranging from about 76 to 88 dBA at a distance of 50 feet from the source, with slightly higher levels of about 88 to 91 dBA for certain types of earthmoving and impact equipment. Table 3.4 indicates noise levels at 25, 50, and 100 feet from the noise source for typical construction equipment with and without controls. In Table 3.4, the “With Controls” columns show noise level estimates that can be obtained by selecting quieter procedures or machines and implementing noise-control features that do not require major redesign or extreme cost (e.g., improved mufflers, equipment redesign, use of silencers, shields, shrouds, ducts, and engine enclosures).

The Dos Osos Noise and Vibration Analysis provides a summary of key construction activities by project phase and shows the highest noise levels associated with different phases of the Project, with and without controls.

**TABLE 3.4
Noise Levels of Selected Construction Equipment**

Equipment	Noise Level at 25 feet		Noise Level at 50 feet		Noise Level at 100 feet	
	Without Controls	With Controls ^a	Without Controls	With Controls ^a	Without Controls	With Controls ^a
Earthmoving						
Front Loaders	85	81	79	75	73	69
Backhoes	91	81	85	75	79	69
Dozers	86	81	80	75	74	69
Tractors	86	81	80	75	74	69
Graders	91	81	85	75	79	69
Trucks ^b	97	81	91	75	85	69
Materials Handling						
Concrete Mixers	91	81	85	75	79	69
Concrete Pumps	88	81	82	75	76	69
Cranes	89	81	83	75	77	69
Derricks	94	81	88	75	82	69
Stationary						
Pumps	82	81	76	75	70	69
Generators	84	81	78	75	72	69
Compressors	87	81	81	75	75	69
Impact						
Pile Drivers	107	101	101	95	95	89
Rock Drills	104	86	98	80	92	74
Jack Hammers	94	81	88	75	82	69
Pneumatic Tools	92	86	86	80	80	74
Other						
Saws	84	81	78	75	72	69
Vibrators	82	81	76	75	70	69

a. Estimated levels can be obtained by selecting quieter procedures or machines and implementing noise-control features that do not require major redesign or extreme cost (e.g., improved mufflers; equipment redesign; and use of silencers, shields, shrouds, ducts, and engine enclosures).

b. This noise level represents the maximum noise level associated with a single passing truck.

Source: U.S. Environmental Protection Agency, 1971, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, NTID300.1*

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.6, Noise Control, of this standard construction specification includes minimization measures for noise control of construction equipment, including:

- Contractor responsibility for taking appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance.
- Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the Project without said muffler.
- Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) shall be used for all equipment and trucks, as necessary.
- Material stockpiles as well as maintenance/equipment staging and parking areas (all on site) shall be located as far as practicable from residential receptors.

Because these construction equipment noise minimization measures have been incorporated into the Project, the noise levels “*With Controls*” for construction equipment shown in Table 3.4 (above) can be applied to the Project.

When typical construction noise levels with controls are applied to each site, worst-case, project-related, temporary noise increases can be estimated based on the minimum distance to the closest sensitive receptor.

At the new dual Dos Osos Reservoirs site, the nearest sensitive receptor is the residence at 9 Los Norrabos, approximately 340 feet from the site and approximately 40 feet lower in elevation than the bottom elevation of the new dual Dos Osos Reservoirs. At the existing Dos Osos Reservoir site, the nearest sensitive receptor is the residence at 9 Los Norrabos, approximately 160 feet from the existing Dos Osos Reservoir and approximately 30 feet higher in elevation. At the existing Dos Osos Pumping Plant, the nearest sensitive receptor is a residence at 263 El Toyonal approximately 100 feet from the pumping plant at approximately the same elevation as the pumping plant.

The Dos Osos Noise and Vibration Analysis includes a projected construction noise level analysis to determine the expected noise level at the nearest sensitive receptors to Project sites during the loudest construction activity for each phase. The significance of temporary increases in noise levels due to construction activities is evaluated by comparing estimated noise levels with the 70-dBA speech interference criterion. Table 3.5 shows the results of the noise level analysis by construction phase.

**TABLE 3.5
Noise Level Analysis by Construction Phase**

Project Site	Closest Sensitive Receptor	Construction Hours	Major Construction Activities	Duration (Weeks)	Loudest Projected Noise Level at 50 feet (dBA)	Distance to Closest Sensitive Receptor ² (feet)	Noise Level Distance Adjustment ³ (dBA)	Projected Noise Level at Sensitive Receptor during Key Construction Activities (dBA)	Exterior Speech Interference Criterion (dBA)	Criterion Exceeded ?
					With Controls ¹					
Existing Reservoir Demolition	9 Los Norrabos	8 a.m. to 6 p.m.	Demolish Reservoir Structures	2	75	160	-10	65	70	No
			Demolish Reservoir Concrete	1	80		-10	70		No
			Demolish Underground Piping	1	75		-10	65		No
			Backfill	2	75		-10	65		No
			Site Restoration	1	75		-10	65		No
New Dual Reservoirs Construction	9 Los Norrabos	8 a.m. to 6 p.m.	Excavation/Site Work	7	75	340	-17	58	70	No
			Retaining Wall Construction	5	75		-17	58		No
			Dual Reservoirs Construction	12	80		-17	63		No
			Landscaping/Site Restoration	5	75		-17	58		No
Existing Pumping Plant Rehabilitation	263 El Toyonal	8 a.m. to 11 a.m. and 6 p.m. to 8 a.m.	Electric Portable Pump ⁴	4	40	100	-6	34	70	No

1. U.S. Environmental Protection Agency, 1971, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, NTID300.1

2. Sensitive receptors are defined as population groups more sensitive to noise that are associated with land uses such as residential areas, hospitals, schools, child care facilities, senior facilities, libraries, churches, and parks.

3. There is a noise level drop of 6 dB per doubling of distance. The application of this inverse distance formula calculates the decrease in noise level at a sensitive receptor due to its distance from the noise source.

4. The noise emitted by the electric portable pump with acoustic enclosure will not exceed 65 dBA, measured at a distance of 3 feet (free field) from any side of the enclosure, with two of the three pumps running at 100 percent speed and all doors closed. This requirement translates to a Loudest Projected Noise Level at 50 feet of 40 dBA.

During the construction of the new dual Dos Osos Reservoirs, the loudest projected noise levels occur during the concrete work for the new dual reservoirs and the paving of the new access road to the new dual reservoirs. However, for all phases of the new dual reservoirs construction, the projected noise levels at the nearest sensitive receptors would be below the speech interference criterion of 70 dBA with implementation of Section 3.6, Noise Control, of the Environmental Requirements Standard Construction Specification and the distance from the new dual Dos Osos Reservoirs construction to the nearest sensitive receptor.

During the rehabilitation of the existing Dos Osos Pumping Plant, existing electrical and mechanical equipment within the existing pumping plant building will be removed and replaced with upgraded electrical and mechanical equipment. No heavy construction equipment will be required for this work. However, while pumping plant equipment is being replaced, an electric portable pump with acoustic enclosures will be used to maintain pumping operations for potable water service, as detailed in the Project Description. The projected noise levels, from electric portable pump operation, at the nearest sensitive receptor would be low, 34 dBA, which is below both the speech interference criterion of 70 dBA and the City or Orinda ordinance nighttime noise limit of 55 dBA in single-family residential zones.

During the demolition of the existing Dos Osos Reservoir, the loudest projected noise levels occur during demolition of the existing concrete pad at the reservoir. However, for all phases of the existing reservoir demolition, given the distance from the existing reservoir to the nearest sensitive receptor, incorporation into the Project of Section 3.6, Noise Control, of the Environmental Requirements standard construction specification ensures that the projected noise levels at the nearest sensitive receptors would be below the speech interference criterion of 70 dBA.

There are several factors which EBMUD did not consider quantitatively, but which would likely reduce noise levels associated with the Project below the levels predicted in the Noise and Vibration Analysis. The noise level estimates at nearby sensitive receptors do not account for noise attenuation from existing vegetation, topography or other physical barriers between a site and receptors. The residence at 9 Los Norrabos (the closest sensitive receptor to both the existing Dos Osos Reservoir and the new dual Dos Osos Reservoirs site) is 30 feet higher in elevation than the existing Dos Osos Reservoir and 40 feet lower than the new dual Dos Osos Reservoirs proposed pad elevation, which would further reduce noise levels. Also, vegetation located between a noise source and receptors can act as noise barriers wherever they interrupt direct lines-of-sight, helping to reduce noise levels at sensitive receptors. For the Project, vegetation, including large trees, exists between the existing reservoir and dual reservoirs site and nearby sensitive receptors, thereby, likely reducing noise levels relative to those predicted in the Noise and Vibration Analysis. Finally, at the site of the existing Dos Osos Pumping Plant, the Westside Reservoir, a 0.3 MG, 30-foot-high, 45-foot-diameter, steel water tank, lies directly between the pumping plant and the nearest sensitive receptor, which would also likely reduce noise levels at that receptor relative to those predicted in the Noise and Vibration Analysis. Thus, projected noise levels reported herein may be conservatively high.

Because Section 3.6, Noise Control, of EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes measures for noise control of construction equipment such as mufflers and intake silencers, and given the distance of the sensitive receptors from the construction sites, short-term construction noise levels at nearby sensitive receptors would fall below the speech criterion, and impacts due to short-term construction activities would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- e. **No Impact.** The Project is not located within an airport land use plan area or within two miles of a public airport or public-use airport.
- f. **No Impact.** The Project is not located in the vicinity of a private airstrip.

XIII. Population and Housing

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a. **No Impact.** The Project will not induce population growth by making additional water supply available for new development. The Project rehabilitates and replaces existing facilities to improve water quality, operational flexibility, and the reliability of the existing water distribution system for existing customers. The new dual reservoirs together have the same water storage capacity as the existing Dos Osos Reservoir. The existing customers are all within EBMUD’s Ultimate Service Boundary, which is a defined service and growth boundary adopted by EBMUD. Therefore, the Project is not extending growth into a new area or creating momentum for new development within the existing area.
- b. **No Impact.** No housing presently exists at the Project site where the new dual reservoirs and associated access road and inlet-outlet pipeline will be constructed; therefore, the proposed Project would not displace housing.

- c. **No Impact.** The Project would not displace people or housing from the site and no relocation would be required.

XIV. Public Services

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a. **No Impact.** The Project rehabilitates an existing pumping plant, constructs new dual reservoirs, and demolishes an existing reservoir. The Project would not generate a need for any new public facilities (schools, police protection, parks, etc.), because it does not induce population and employment growth. Workers at the Project site are likely to commute from the existing Bay Area labor supply. Any deterioration of existing public facilities resulting from construction (e.g., streets) would be restored by EBMUD to preconstruction condition upon completion of construction. The Project will have a beneficial effect on firefighting capabilities in the area by improving water supply delivery reliability in the neighborhoods surrounding the new dual reservoirs site.

XV. Recreation

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a. **No Impact.** The Project will not generate or attract additional population, as would be associated with residential, commercial or industrial uses; therefore, it would not affect demand for recreational facilities. The Project will not significantly increase the use of the Siesta Valley Recreation Area.

- b. **No Impact.** The Project consists exclusively of water distribution system facilities and does not require the construction or expansion of recreational facilities.

XVI. Transportation/Traffic

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestions management program, including but not limited to level of service demands and travel demand measures, or other standards established by the county congestion management agency for designated roads and or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

The Project would not cause long-term effects on transportation or traffic because, once installed, the rehabilitated Dos Osos Pumping Plant and new dual Dos Osos Reservoirs would require maintenance activities similar to those that occur under existing conditions. The Dos Osos Pumping Plant would require maintenance trips approximately once a month. The new dual Dos Osos Reservoirs would require maintenance trips approximately twice a month for facilities and landscaping maintenance.

The duration of the potential significant impacts would be limited to the period of time needed to construct the Project. Existing traffic conditions plus various Project peak-hour traffic conditions were calculated and compared to the CEQA Guidelines significance criteria to determine significance of impacts.

a. and b. Less than Significant Impact. The Project would generate short-term increases in

vehicle trips by construction workers and construction vehicles on area roadways. Construction-generated traffic would be temporary and, therefore, would not result in long-term degradation in operating conditions or level of service on Project area roadways.

Short-Term Construction Impacts.

The primary offsite impacts from the movement of construction trucks would include a short-term and intermittent lessening of roadway capacities due to the slower movements and larger turning radii of the trucks compared to passenger vehicles. Traffic-generating construction activities would consist of the daily arrival and departure of personnel (construction work crews and supervisory staff), trucks hauling equipment and materials to the worksites, and the hauling of excavated spoils from the sites. The number of construction-related trips would vary among the different phases of the proposed Project and among the tasks needed to complete proposed work at each facility. The analysis of potential impacts associated with each Project phase, below, focuses on the maximum number of daily and hourly vehicle trips during the duration of each component of construction. Impacts during other tasks would be less than those described for the maximum trips.

Table 3.6 contains trip generation estimates for each construction phase of the Project. Potential haul routes include Camino Pablo, El Toyonal, Lomas Cantadas, Grizzly Peak, and Fish Ranch Road.

TABLE 3.6
Maximum Truck and Vehicle Trips during Construction

Construction Phase	Approx. Duration (weeks)	Maximum Haul/ Material Trucks (per day)	Maximum Worker Vehicles (per day)	Maximum Hourly One-Way Trips	
Dual Reservoirs Excavation	8	28	8	8	Trucks
				8	Vehicles
Dual Reservoirs Retaining Wall Construction	5	28	10	8	Trucks
				10	Vehicles
Dual Reservoirs Construction	28	28	8	8	Trucks
				8	Vehicles
Dual Reservoirs Landscaping and Security	5	4	6	2	Trucks
				6	Vehicles
Existing Dos Osos Pumping Plant Rehabilitation	26	2	5	1	Trucks
				5	Vehicles
Existing Dos Osos Steel Tank Demolition	5	2	5	1	Trucks
				5	Vehicles
TOTAL DURATION (WEEKS)	77				
MAXIMUM ONE-WAY TRIPS PER HOUR =				8	Trucks
				10	Vehicles

Notes:

1. Work schedule: eight-hour workday (typical construction hours Monday-Friday, 8:00 a.m. to 6:00 p.m.).
2. Daily "Haul/Material Trucks" quantities are doubled to calculate daily one-way truck trips. Daily one-way trips account for trucks/vehicles **going to and leaving the Project site on a daily basis**.
3. Maximum hourly one-way truck trips is estimated by averaging the number of trucks **going to and leaving the job site on a daily basis over a seven-hour period (9:00 a.m. to 4:00 p.m.)**.
4. Maximum hourly one-way vehicle trips is estimated by assuming all workers are arriving and leaving the job site in a one-hour period expected to occur during a.m. and p.m. peak hours.
5. Haul trucks average nine cubic yards (CY) per load; concrete trucks average nine CY per load.
6. Excavation is about 5,400 CY. Backfill is about 400 CY. Assume all required backfill amounts will be obtained from excavated quantities stockpiled on site.
7. Assume that all excess soil excavation will be off-hauled.
8. One worker per vehicle.

The trip generation analysis estimates a maximum of eight haul/material trucks per hour during construction; a maximum of ten worker vehicles per hour is estimated by assuming all workers are arriving and leaving the job site in a one-hour period during peak commute hours. This short-term increase in truck and vehicle traffic has the potential to substantially affect roadway traffic flow, especially during peak commute hours.

A Transportation Impact Analysis done for the City of Orinda Housing Element Update⁵ by Abrams Associates (City Housing Traffic Study) in 2014 evaluated potential transportation and circulation impacts that would result from the proposed update to the Housing Element of the City's General Plan Update. One alternative examined in the City Housing Traffic Study evaluated the traffic impacts of 108 single-family dwelling units to be located at three sites north of Highway 24 and west of Camino Pablo on critical capacity-controlling intersections. The City Housing Traffic Study intersections included (all signalized intersections):

- Camino Pablo and Santa Maria Way
- Camino Pablo and Orinda Way (El Toyonal)
- Camino Pablo and Camino Sobrante
- Camino Pablo and the Westbound 24 Off-Ramp/Brookwood Road

Since a potential route for construction traffic to the Project area incorporates construction traffic to and from Highway 24 via Camino Pablo and El Toyonal to the Project sites, this alternative of the City Housing Traffic Study provides useful comparison traffic study data with which to analyze Project short-term construction traffic impacts. The study intersections listed above could potentially be impacted by short-term construction traffic generated by the Project.

The basis of analysis for the City Housing Traffic Study was peak-hour level of service calculations for key intersections in the area. The hours identified as the "peak" hours are generally from 7:30 a.m. to 8:30 a.m. and from 5:00 p.m. to 6:00 p.m. for the transportation facilities described. These peak hours were identified as the AM and PM peak hours, respectively.

The City Housing Traffic Study found that even with build-out of the 108 housing units, the critical intersections would continue to operate at acceptable conditions during the weekday AM and PM peak hours. The City Housing Traffic Study found that no significant impacts would result from the proposed City Housing Element of the City's General Plan Update and that no off-site transportation mitigations would be required.

The trip generation analysis for the Project estimates a maximum of eight haul/material trucks per hour during construction and a maximum of ten vehicles per hour during construction (estimating that all workers are arriving and leaving the job site in a one-hour period during peak commute hours). These estimated peak-hour trip generation estimates for the Project are all lower than the estimated peak-hour trip generation estimates for the City Housing Traffic Study; thus, if traffic impacts from the City Housing Element of the General Plan Update were found to be less than significant, short-term construction impacts on traffic from the Project alone can be assumed to be also less than significant at the critical intersections studied.

⁵City of Orinda Housing Element Update and Associated General Plan and Zoning Ordinance Amendments Transportation Impact Analysis. Abrams Associates Traffic Engineering, Inc., October 14, 2014.

Also, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 14 00, Work Restrictions, and Standard Construction Specification 01 55 26, Traffic Regulation.

Specification 01 14 00 limits the work hours for the Project and, as detailed in the Project Description, haul hours will be limited to between 9:00 a.m. and 4:00 p.m. to prohibit haul truck traffic in the El Toyonal neighborhood during commute hours and limit construction haul and material trucks to haul times outside of the peak morning and evening commute hours. By prohibiting haul and material trucks during the peak morning and evening commute hours delineated in the City Housing Traffic Study, potential short-term construction impacts on traffic due to the Project alone will be less than significant.

Section 1.2, Submittals, of EBMUD's Standard Construction Specification 01 55 26, requires a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include:

- Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.
- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.
- Procedures, to the extent feasible, to schedule construction of Project elements to minimize overlapping construction phases that require truck hauling.
- Designated Contractor staging areas for storage of all equipment and materials in such a manner to minimize obstruction to traffic.
- Locations for parking by construction workers.

Implementation of Section 1.2, Submittals, of EBMUD's Standard Construction Specification 01 55 26 requires a Traffic Control Plan which will minimize impacts to local circulation during construction of the Project by requiring circulation and detour plans, providing emergency response vehicle access, and designating parking sites for construction workers.

Because EBMUD's Standard Construction Specifications 01 14 00, Work Restrictions, and 01 55 26, Traffic Regulation, have been incorporated into the Project and include provisions for limiting haul and material trucks during construction to time periods outside of peak commute hours, and require implementation of a Traffic Control Plan that minimizes impacts to traffic circulation, Project impacts related to short-term construction traffic from the Project alone will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- c. No Impact.** The Project would not affect air traffic, and no impacts related to air traffic or safety would result.

- d. Less than Significant Impact.** The Project would not result in permanent changes to existing traffic design features or incompatible uses.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.2, Site Survey and Audio-Video Recording Requirements, of EBMUD's Standard Construction Specification 00 31 21.13, Site Survey Information, which requires ground photography consisting of color audio-video recording of surface features taken along the entire length of the project and including all work and storage areas and all intersecting roadways and shall include:

- Preconstruction Alignment Surveys consisting of an audio-video recording of the complete project alignment and all access and haul routes to be utilized during construction. The survey shall fully document the conditions of pavements and public and private improvements within the limits of work.
- Postconstruction Surveys consisting of postconstruction audio-video recording of the same areas recorded in the Pre-Construction Survey. The Engineer will review post-construction survey findings with the Contractor and develop a complete listing of project site restoration requirements to be accomplished by the Contractor. The Contractor shall be responsible for repairing any damage or defect not documented as existing prior to construction.

Because Section 1.2, Site Survey Audio-Video Recording Requirements, of EBMUD's Standard Construction Specification 00 31 21.13, Site Survey Information, has been incorporated into the Project, and requires the Contractor to provide documentation of both pre- and postconstruction pavement conditions in the project vicinity, and includes provisions for returning all postconstruction roadway conditions to preconstruction conditions, the Project would not result in permanent changes to existing traffic design features. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- e. Less than Significant Impact.** The Project would not impact emergency access, because contract specifications will require the Contractor to maintain emergency roadway access at all times.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.2, Submittals, and Section 3.1, General (Execution), of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation.

Section 1.2, Submittals, requires preparation of a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include:

- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.

Section 3.1, General (Execution) includes the following provisions:

- For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.
- A minimum of 12-foot travel lanes must be maintained unless otherwise approved by EBMUD.

Because Section 1.2, Submittals, and Section 3.1, General (Execution), of EBMUD’s Standard Construction Specification 01 55 26, Traffic Regulation, has been incorporated into the Project and requires maintenance of emergency roadway access at all times, Project impacts related to emergency access will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- f. No Impact.** Postconstruction and during normal long-term operations of the Dos Osos Pumping Plant and the new dual Dos Osos Reservoirs, the Project would generate less than one vehicle trip per day. Therefore, it would not affect policies supporting alternative transportation.

XVII. Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project, that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

a. and b. No Impact. The Project will not generate long-term wastewater that will require treatment. Long-term operation of the pumping plant and reservoir operations will not exceed wastewater treatment requirements of the applicable RWQCB. Construction of the proposed new dual reservoirs and associated inlet-outlet discharge pipeline to connect to existing water pipelines will not cause any significant environmental impacts.

c. Less than Significant Impact. At the new dual Dos Osos Reservoirs site, stormwater runoff would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. All stormwater runoff from the impervious surfaces (dual reservoir roofs and pad) would be allowed to infiltrate over native soils. The new access road would be cross-sloped such that stormwater runoff would infiltrate to native soils immediately adjacent to the access road over watershed lands. A new, eight-inch steel overflow drainage pipeline for the new dual Dos Osos Reservoirs will be constructed along the proposed access road alignment to connect to the existing overflow line and ultimately outflow at the existing overflow storm drain outlet 450 feet south of the existing Dos Osos Reservoir.

Environmental impacts from construction of new stormwater drainage facilities at the new dual Dos Osos Reservoirs site will be less than significant, because stormwater runoff from the new drainage facilities will continue to be conveyed along preconstruction drainage patterns and allowed to infiltrate over native soils.

The rehabilitation of the Dos Osos Pumping Plant would not require the construction of any new storm water drainage facilities or the expansion of existing facilities. The demolition of the existing Dos Osos Reservoir would not require the construction of any new storm water drainage facilities or the expansion of existing facilities.

d. No Impact. The Project would not result in the need for new additional water supply. The capacity of the rehabilitated Dos Osos Pumping Plant and total storage of the new dual Dos Osos Reservoirs will not change from existing conditions.

e. No Impact. The Project will not generate long-term wastewater outputs, as the Project rehabilitates and replaces facilities within a closed, potable water distribution system.

- f. Less than Significant Impact.** The Project will require the excavation of in-place soils. Soils and any solid waste encountered in the excavations will be disposed of at an appropriate landfill identified by the Contractor as required in EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, regarding material off-haul and disposal.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.3C, Construction and Demolition Waste Disposal Plan, of standard construction specification includes submittal of a Construction and Demolition Waste Disposal Plan that:

- Requires measures for removing, handling, transporting, and disposing of any waste material (except liquid wastes addressed in the Water Control and Disposal Plan).
- Includes a sampling and analytical program for characterizing any waste material, as needed, prior to reuse, recycling or disposal.
- Identifies the disposal method for soil and the approved disposal site, and includes written documentation that the disposal site will accept the waste. Prior to disposition of wastes, the Contractor must submit copies to EBMUD of waste profile forms and correspondence between the contractor and the disposal facility. Prior to disposal of hazardous wastes, the contractor must submit copies of the waste manifests to EBMUD and provide documentation that the waste hauler is regulated by the state to transport hazardous wastes.

Because Section 1.3C, Construction and Demolition Waste Disposal Plan, of EBMUD's Environmental Compliance Manual and Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project and include provisions for identifying disposal methods for soil and the approved disposal site, Project impacts from potential insufficient landfill capacity for the Project will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

The Project will not generate long-term solid waste outputs, as the Project upgrades and replaces facilities within a closed, potable water distribution system.

- g. Less than Significant Impact.** The Project will comply with applicable statutes and regulations related to solid waste.

XVIII. Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

a. Less than Significant with Mitigation Incorporated. As described above, the Project has the potential to cause significant impacts related to Biological Resources and Geology and Soils. Mitigation measures have been identified to reduce these impacts to less than significant levels. No further mitigation would be required.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Aesthetics, Air Quality, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.

The Project has the potential to significantly reduce the number or restrict the range of a rare or endangered plant or animal including the state- and federally-protected Alameda whipsnake. The new dual Dos Osos Reservoirs site occurs on federal critical habitat for the Alameda whipsnake. Mitigation Measures BIO-1 through BIO-5 will ensure that any potential biological impacts to special-status species plants, reptiles, mammals and invertebrates with the potential to occur at the Project sites will be reduced to less than significant levels (Section IV, above). No further mitigation would be required.

The Project does not have the potential to 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, or eliminate important examples of the major periods of California history or prehistory, as described in the Biological Resources and Cultural Resources environmental discipline sections of the document. No further mitigation would be required.

- b. Less than Significant Impact.** As described in the document above, the Project has the potential to cause significant impacts related to Biological Resources and Geology and Soils. Mitigation measures have been identified that would reduce these impacts to less than significant levels.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Aesthetics, Air Quality, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.

For any impacts to act cumulatively on any past, present, or any reasonably foreseeable projects, these projects would have to have individual impacts in the same resource areas at the same time and in the same localized area as the proposed Project.

In April 2015, the City of Orinda adopted its 2015-2023 Housing Element which assumed a maximum of 108 multi-family residential units to be built by 2023. There is a potential for the proposed Project construction to overlap with completed buildout of the Housing Element. However, because the Project construction haul and material truck traffic will be prohibited from roadways during peak commute hours, the Project proposes a maximum of ten worker vehicles per hour during peak commute hours, and the Project's traffic impacts would be reduced with implementation of EBMUD standard practices and procedures, the additive effect of the Project's construction traffic truck and vehicle trips in addition to proposed Housing Element peak commute hour traffic would not be cumulatively considerable. Also the selection of other alternatives for the City's Housing Element and alternate construction access routes for the proposed Project may result in no overlap of traffic. There are no other known City of Orinda major development projects planned for the near future that would occur in the same localized area as the proposed Project.

One future EBMUD project in the El Toyonal neighborhood that has the potential for cumulatively significant impacts is the Westside Pumping Plant Relocation Project (Westside Project), which consists of relocation of the existing Westside Pumping Plant, located at 20 El Rincon, to the site of the existing Encinal Pumping Plant, located at 4 Madera Lane, and associated pipeline improvements in the El Toyonal neighborhood; it also requires the demolition of the existing Encinal Pumping Plant, demolition of the existing Westside Pumping Plant, and construction of a new Westside Pumping Plant. The Westside Project includes the replacement of the existing Encinal Reservoir at 20 El Rincon with a new Encinal Regulator. The Westside Project will replace aging infrastructure, improve water

quality operations efficiency by removing excess water storage, and improve domestic and emergency water service reliability.

The Westside Project is scheduled to begin construction in 2020 and be completed by 2022; the proposed Project is scheduled to begin construction in 2023 and be completed by 2024. There will be no overlapping of construction timeframes for the two projects. EBMUD does not have any projects near the Project sites that would be implemented at the same time as the proposed Project. Because there are no other projects occurring within the vicinity or at the same time as the proposed Project, and because the Project's impacts would be reduced with implementation of mitigation measures, the Project's contribution to cumulative impacts would not be cumulatively considerable.

- c. **Less than Significant with Mitigation Incorporated.** The Project has the potential to result in substantial adverse effects on human beings or their environment, either directly or indirectly.

As described in the document above, the Project has the potential to cause significant impacts related to Biological Resources and Geology and Soils. Mitigation measures have been identified that would reduce these impacts to less than significant levels.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Aesthetics, Air Quality, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.

Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
Biological Resources							
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p>Mitigation Measure BIO-1: Implement the following avoidance or minimization measures for sensitive plant species:</p> <ul style="list-style-type: none"> • Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive a CNPS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the sensitive plant species in the Project vicinity, including natural history and habitat, the general protection measures to be implemented to protect the species, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of special-status plant species and destruction or damage of their habitat would be a violation of state and federal law. • Project boundaries will be delineated and flagged prior to construction by the Contractor. All construction activities will be conducted within the delineated Project boundaries. • Staging areas and construction access points will be delineated in the field away from sensitive plant species, and all staging will occur within these designated areas. • In the spring prior to construction, a qualified botanist (EBMUD) will conduct preconstruction sensitive plant surveys in all areas where ground disturbance will occur. Any observed sensitive plant species will be mapped and flagged for avoidance where feasible. EBMUD will notify CDFW or CNPS upon discovery of any sensitive plant species during preconstruction surveys. • Sensitive plant species will be avoided or minimized by limiting ground disturbance where sensitive plants occur. • If California ponysfoot or rayless arnica cannot be avoided, EBMUD will salvage the affected plants and transplant them to a similar habitat in the Project vicinity. The re-established population should achieve a 1:1 ratio (transplanted:re-established) after two years. If this performance criterion cannot be met, an in-lieu fee will be paid to the state CNPS program. • If any additional sensitive plant species are discovered on site that cannot be avoided, the appropriate agencies will be consulted by EBMUD to determine the appropriate species-specific mitigation measures. • Mitigation for sensitive plant species may include: repairing, rehabilitating or restoring the impacted area; preserving in-situ populations on site; or by providing offsite compensation. Offsite compensation may include the permanent protection of an offsite population through a conservation easement or the purchase of mitigation banking credits at a 1:2 ratio. 	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction			X
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p>Mitigation Measure BIO-2: Implement the following avoidance and minimization measures for the Alameda whipsnake:</p> <ul style="list-style-type: none"> • Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive USFWS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the Alameda whipsnake, including natural history and habitat, a review of the state and federal listing of the species, the general protection measures to be implemented to protect the Alameda whipsnake, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of listed species and destruction or damage of their habitat would be a violation of state and federal law. • Habitat restoration work may include replanting or seeding with plant species that were removed during construction and removal activities. All wildlife exclusion fencing, as described in Mitigation Measure BIO- 	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction		X	X

Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	<p>5, and construction-related materials will be removed from the site.</p> <ul style="list-style-type: none"> • Seven days and twenty-four hours prior to construction activities, the Project area will be surveyed for Alameda whipsnakes by a qualified biologist (EBMUD). Surveys of the Project area will be repeated if a lapse in construction activity of two weeks or greater occurs. • Movement of heavy equipment will be confined to existing roadways and the construction work areas defined on Project plans to minimize habitat disturbance. • Clearing and grubbing of the construction site will be confined to the minimum area necessary to facilitate construction activities. • If the Alameda whipsnake is observed at the construction site at any time during construction, work will cease immediately until the snake leaves the work area on its own or is relocated outside of the work area by a permit-approved qualified biologist (EBMUD). Any sightings and any incidental take will be reported to the USFWS and CDFW immediately by EBMUD. • A monitoring report of all activities associated with surveys and mitigation for this species will be submitted to the USFWS and CDFW by EBMUD no later than three months after construction is completed. The monitoring report will describe methods and results of any field survey efforts and mitigation measures implemented before, during or after project construction. • To mitigate losses to critical habitat area due to construction of the new dual reservoirs, EBMUD will obtain habitat credits for habitat suitable for the Alameda whipsnake from a conservation or mitigation bank at a minimum ratio of 1:3 (habitat disturbed:habitat credit purchased). • EBMUD will obtain the required permits from USFWS and CDFW for the potential take of Alameda whipsnakes. 						
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p>Mitigation Measure BIO-3: Implement the following avoidance or minimization measures for the San Francisco dusky-footed woodrat:</p> <ul style="list-style-type: none"> • Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive USFWS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the San Francisco dusky-footed woodrat, including natural history and habitat, a review of the state and federal listing of the species, the general protection measures to be implemented to protect the San Francisco dusky-footed woodrat, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of listed species and destruction or damage of their habitat would be a violation of state and federal law. • A preconstruction survey will be performed by a qualified biologist (EBMUD) within seven days prior to the start of ground-disturbing activities to identify the locations of active San Francisco dusky-footed woodrat nests within the Project boundary. Any woodrat nests detected will be mapped and flagged for avoidance by the qualified biologist (EBMUD). • If active nests are determined to be present, avoidance measures will be implemented first. Because San Francisco dusky-footed woodrats are year-round residents, avoidance mitigation is limited to restricting Project activities to avoid direct impacts to San Francisco dusky-footed woodrats and their active nests to the extent feasible. A minimum ten-foot buffer should be maintained between Project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if, in the opinion of a qualified biologist (EBMUD), removing the nest would be a greater impact than that anticipated as a result of Project activities. • If an unoccupied woodrat nest is found within the Project site and it cannot be avoided, the nest should be disassembled by hand by a qualified biologist (EBMUD). The nest materials should be relocated off site outside of the wildlife exclusion fencing to prevent rebuilding. • If occupied nests are found within the Project site, and a litter of young is found or suspected, the nest shall be left alone for two to three weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling. Dismantling shall be done by hand, allowing any animals to escape 	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction		X	X

Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	<p>either along existing woodrat trails or toward other available habitat.</p> <ul style="list-style-type: none"> EBMUD will notify CDFW of any nests, unoccupied or occupied, before they are dismantled. 						
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p>Mitigation Measure BIO-4: Implement the following avoidance or minimization activities for Bridges' coast range shoulderband snails:</p> <ul style="list-style-type: none"> Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the Bridges' coast range shoulderband snail, including natural history and habitat, the general protection measures to be implemented to protect the snail, and a delineation of the limits of the work areas. A preconstruction survey will be performed by a qualified biologist (EBMUD) within 30 days prior to the start of ground-disturbing activities to provide a systematic search of vegetation and objects on site that could provide suitable shelter for the Bridges' coast range shoulderband snail. All live Bridges' coast range shoulderband snails of any life stage that are found during the preconstruction surveys will be captured and moved outside of the Project site, by a qualified biologist (EBMUD), to a site that provides suitable habitat. 	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction			X
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p>Mitigation Measure BIO-5: Wildlife exclusion fencing.</p> <ul style="list-style-type: none"> Orange barrier safety fencing will be installed along the outside edges of the construction area to prevent encroachment of construction personnel and equipment beyond the approved limits of work. Wildlife exclusion fencing constructed of plywood, plastic, aluminum or silt fence material will be installed around the work area. Wildlife exclusion fencing will be buried (six inches, minimum) to prevent animals passing under the fence and will be high enough (three feet, minimum) to prevent amphibians, reptiles and small mammals from passing over the fence. Overhanging vegetation will be trimmed. The fencing will be inspected and repaired regularly. The fencing will be removed only when all construction equipment is removed from the Project site. The fencing will contain one-way egress for special-status species to the extent possible. A barrier to prevent special-status species from entering the work site will be placed across access roads into and out of the work site at the end of the day to prevent animal movement into the site overnight. 	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to Construction		X	X
Geology and Soils							
Impact Geology Soils a): Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.	<p>Mitigation Measure GEO-1: Incorporate geotechnical investigation of the dual reservoirs site into construction and design requirements.</p> <p>EBMUD shall conduct a detailed geotechnical investigation at the new dual reservoirs site prior to design to evaluate the potential for liquefaction, subsidence, and lateral spreading; extent of landslide deposits; and develop applicable slope stabilization methods, as necessary. This geotechnical investigation may include drilling or trenching to obtain subsurface information and to develop engineering recommendations for foundation and slope design. Recommendations and results from the geotechnical investigation shall be incorporated into design and construction of the Project to comply with current seismic and engineering standards and to mitigate against geologic and seismic hazards. Recommendations shall also be incorporated into the proposed Project specifications for implementation during construction and shall be verified during construction by a licensed civil engineer (EBMUD) who shall monitor construction activities to ensure compliance with the design intent.</p>	EBMUD	EBMUD Civil Engineer	Prior to Project Design and Project Construction Specifications			X
Impact Geology Soils c): Potential to be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction,							

Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
<p>or collapse.</p> <p>Impact Geology Soils a): Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.</p> <p>Impact Geology Soils c): Potential to be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.</p>	<p>Mitigation Measure GEO-2: Replace soils (colluvium and alluvium) with high liquefaction potential at the new dual reservoirs site within the Project site with compacted fill, as deemed necessary in the geotechnical investigation (MM GEO-1).</p> <p>Areas of soils with high liquefaction potential within the grading footprint of the new dual reservoirs will be removed and replaced with engineered, compacted fill material. The full extent of the actual locations and amounts to be removed will be determined by a licensed civil engineer (EBMUD) based on the review of grading plans, as well as observations made in the field during grading.</p>	EBMUD Contractor	EBMUD Civil Engineer and Construction Inspector	During Construction			X
<p>Impact Geology Soils a): Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.</p> <p>Impact Geology Soils c): Potential to be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.</p>	<p>Mitigation Measure GEO-3: Remove landslide deposits, as deemed necessary in the geotechnical investigation (MM GEO-1).</p> <p>Areas of landslide deposits within the grading footprint shall be removed. Portions of some landslide areas that extend upslope of the new dual reservoirs site may be left in place; where appropriate, buttress fills and debris catchment areas will be designed and constructed. The extent of actual removals will be determined by a licensed civil engineer (EBMUD) based on the review of grading plans, as well as observations made in the field during grading.</p>	EBMUD Contractor	EBMUD Civil Engineer and Construction Inspector	During Construction			X
<p>Impact Geology Soils a): Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.</p> <p>Impact Geology Soils c): Potential to be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.</p>	<p>Mitigation Measure GEO-4: Implement recommended slope stabilization techniques at the new dual reservoirs site, as deemed necessary in the geotechnical investigation (MM GEO-1). Appropriate slope stabilization techniques will be implemented, as recommended by a licensed civil engineer (EBMUD). These techniques include but are not limited to:</p> <ul style="list-style-type: none"> • Buttressing or encapsulating landslides using engineered, compacted fill material; • Performing corrective grading and recompaction with engineered fill in shallow cut or natural areas of the Project site; • Installing catchment basins and berms to contain potential debris flows that might occur on the steep areas upslope from the proposed reservoirs; • Installing additional buttress fill at the toe of the existing landslide; • Installing plate pile slope reinforcement technologies; • Installing drainage mechanisms, such as subdrains, concrete-lined channels, finger drains, hydroaugers, or gallery drains, within the slopes to move shallow subsurface water away from unstable slopes. 	EBMUD Contractor	EBMUD Civil Engineer and Construction Inspector	During Construction			X

Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
Aesthetics							
Aesthetics a): Potential to have a substantial adverse effect on a scenic vista.	EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements 3.7 Protection of Native and Non-Native Protected Trees A. Tree Protection 1. Locations of trees to be removed and protected are shown in the construction drawings. Pruning and trimming shall be completed by the Contractor and approved by the Engineer. Pruning shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture. 2. Erect exclusion fencing five feet outside of the drip lines of trees to be protected. Erect and maintain a temporary minimum 3-foot high orange plastic mesh exclusion fence at the locations as shown in the drawings. The fence posts shall be six-foot minimum length steel shapes, installed at 10-foot minimum on center, and be driven into the ground. The Contractor shall be prohibited from entering or disturbing the protected area within the fence except as directed by the Engineer. Exclusion fencing shall remain in place until construction is completed and the Engineer approves its removal. 3. No grading, construction, demolition, trenching for irrigation, planting or other work, except as specified herein, shall occur within the tree protection zone established by the exclusion fencing installed shown in the drawings. In addition, no excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the tree protection zone. 4. In areas that are within the tree drip line and outside the tree protection zone that are to be traveled over by vehicles and equipment, the areas shall be covered with a protective mat composed of a 12-inch thickness of wood chips or gravel and covered by a minimum ¾-inch-thick steel traffic plate. The protective mat shall remain in place until construction is completed and the Engineer approves its removal. 5. Tree roots exposed during trench excavation shall be pruned cleanly at the edge of the excavation and treated to the satisfaction of a certified arborist provided by the District. 6. Any tree injured during construction shall be evaluated as soon as possible by a certified arborist provided by the District, and replaced as deemed necessary by the certified arborist.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction		X	X

¹ In EBMUD Standard Specifications, “District” = EBMUD; “Engineer” = EBMUD Engineer; “Contractor” = EBMUD Contractor; “Work” = Scope of Work for the Project

Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
Air Quality							
Air Quality b): Potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>1.3 (E) Dust Control and Monitoring Plan</p> <ol style="list-style-type: none"> 1. Submit a plan detailing the means and methods for controlling and monitoring dust generated by demolition and other work on the site for the Engineer’s acceptance prior to any work at the jobsite. The plan shall comply with all applicable regulations including but not limited to the Bay Area Air Quality Management District (BAAQMD) visible emissions regulation and Public Nuisance Rule. The plan shall include items such as mitigation measures to control fugitive dust emissions generated by construction activities. The Plan shall outline best management practices for preventing dust emissions, provide guidelines for training of employees, and procedures to be used during operations and maintenance activities. The plan shall also include measures for the control of paint overspray generated during the painting of exterior surfaces. The plan shall detail the equipment and methods used to monitor compliance with the plan. The handling and disposal of water used in compliance with the Dust Control Plan shall be addressed in the Water Control and Disposal Plan. <p>1.3 (I) Tuneup Logs</p> <ol style="list-style-type: none"> 1. The Contractor shall submit a log of required tuneups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review. <p>3.3 (B) Dust Control</p> <ol style="list-style-type: none"> 1. Contractor shall implement all necessary dust control measures, including but not limited to the following: <ol style="list-style-type: none"> a. Water and/or coarse rock all dust-generating construction areas as directed by Engineer to reduce the potential for airborne dust from leaving the site. b. Cover all haul trucks entering/leaving the site and trim their loads as necessary. c. Using wet power vacuum street sweepers to: <ol style="list-style-type: none"> 1) Sweep all paved access road, parking areas and staging areas at the construction site daily or as often as necessary. 2) Sweep public roads adjacent to the site at least twice daily or as often as necessary. d. The use of dry power sweeping is prohibited. e. All trucks and equipment, including their tires, shall be washed off prior to leaving the site. f. Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. g. Water and/or cover soil stockpiles daily. h. Site accesses to a distance of 100 feet from the paved road shall be treated with 12-inch layer of compacted coarse rock. i. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent. j. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. k. Building pads shall be laid as soon as possible after grading. 	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	n. All vehicle speeds shall be limited to fifteen (15) mph or less on the construction site and any adjacent unpaved roads.						
	3.4. Emissions Control						
	A. Air Quality and Emissions Control						
	1. The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.						
	2. The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.						
	3. Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.						
	4. Contractor shall implement standard air emissions controls such as:						
	a. Minimize the use of diesel generators where possible.						
	b. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.						
	c. Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.						
	d. Locate generators at least 100 feet away from adjacent homes and ball fields.						
	e. Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.						
Air Quality c): Potential to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Sections (1.3) (E, I); (3.3) (B); 3.4 (A) (Details as previously listed)	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X
Air Quality d): Potential to expose sensitive receptors to substantial pollutant concentrations.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Sections (1.3) (E, I); (3.3) (B); 3.4 (A) (Details as previously listed)	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X
Air Quality e): Potential to create objectionable odors affecting a substantial number of people.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Sections (1.3) (I); (3.4) (A) (Details as previously listed)	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X

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Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
Biological Resources							
Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by California Department of Fish & Wildlife or U.S. Fish & Wildlife Service.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>3.8 Protection of Biological Resources</p> <p>A. The District will conduct biological reconnaissance and tree surveys in advance of construction and will conduct biologic and arboreal monitoring during construction as necessary.</p> <p>B. Protected Species</p> <p>1. If protected species or suitable habitat for protected species is found during biological reconnaissance surveys:</p> <p>a. Before beginning construction, all Contractor construction personnel are required to attend an environmental training program of up to one-day for site supervisors, foreman and project managers and up to 30-minutes for non-supervisory contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of Contractor’s construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. Prior to accessing or performing construction work, all Contractor personnel shall:</p> <ul style="list-style-type: none"> · Sign a wallet card provided by the Engineer verifying that all Contractor construction personnel have attended the appropriate level of training relative to their position; have read and understood the contents of any applicable documentation; and shall comply with all project environmental requirements. · Display an environmental training hard hat decal (provided by the District after completion of the training) at all times. <p>b. Birds Protected under the Migratory Bird Treaty Act:</p> <ol style="list-style-type: none"> 1. It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior. 2. If construction commences between February 1 and August 31, during the nesting season, the District will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction. 3. If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size will be determined by the District in consultation with California Department of Fish and Wildlife (CDFW) and is based on the nest location, topography, cover and species’ tolerance to disturbance. 4. If an avoidance buffer is not achievable, a qualified biologist provided by the District will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately and the Contractor shall notify the Engineer who will consult with the qualified biologist and appropriate regulatory agencies. 5. If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that 	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	<p>are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by District’s biologist, would be necessary.</p> <p>c. Roosting Bats</p> <ol style="list-style-type: none"> 1. If construction commences between March 1 and July 31, during the bat maternity period, the District will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction. 2. If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, a qualified biologist provided by the District will conduct focused day-and/or night-emergence surveys, as appropriate. 3. If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffers shall be constructed. The buffer size will be determined by the District in consultation with CDFW. 4. If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safety evicted, under the direction of a qualified biologist provided by the District in consultation with CDFW to ensure that the bats are not injured. 5. If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary. 						

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Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
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Cultural Resources							
Cultural Resources b): Potential to cause a substantial adverse change in the significance of a unique archaeological resource as defined in Section 15064.5 (of the CEQA Guidelines).	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>3.9 Protection of Cultural and Paleontological Resources</p> <p>A. Confidentiality of Information on Cultural Resources</p> <ol style="list-style-type: none"> 1. Prior to, or during the course of the Contractor’s performance under this contract, the Contractor may obtain information as to the location and/or nature of certain cultural resources, including Native American artifacts and remains. This information may be provided to the Contractor by the District or a third party, or may be discovered directly by the Contractor through its performance under the contract. All such information shall be considered “Confidential Information” for the purposes of this Article. 2. The Contractor agrees that the Contractor, its subcontractors, and their respective agents and employees shall not publish or disclose any Confidential Information to any person, unless specifically authorized in advance, in writing by the Engineer. 3. The indemnity obligations of Document 00 72 00 Article 4.7.5 shall apply to any breach of this Article.” <p>B. Conform to the requirements of statutes as they relate to the protection and preservation of cultural and paleontological resources. Unauthorized collection of prehistoric or historic artifacts along the Work Area, or at Work facilities, is strictly prohibited.</p> <p>C. Before beginning construction, all Contractor construction personnel are required to attend a cultural resources training course of up to two-hours for site supervisors, foreman, project managers, and non-supervisory contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified archaeologist or by District staff. The program will discuss cultural resources awareness within the project work limits, including the responsibilities of Contractor’s construction personnel, applicable mitigation measures, confidentiality, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. Prior to accessing the construction site or performing site work, all Contractor personnel shall:</p> <ol style="list-style-type: none"> 1. Sign an attendance sheet provided by the Engineer verifying that all construction personnel have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the “Confidentiality of Information on Archaeological Resources”; and shall comply with all project environmental requirements. <p>D. In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted:</p> <ol style="list-style-type: none"> 1. Discovery of prehistoric or historic-era archaeological resources requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery. <ol style="list-style-type: none"> a. The Contractor shall immediately notify Engineer who will engage a qualified archaeologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the proper personnel and shall not recommence work until authorized to do so by the Engineer. b. The District will retain a qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a historical resource as defined by CEQA (or a historic property as defined by the National Historic Preservation Act of 1966, as 	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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	<p>amended), construction shall cease in an area determined by the archaeologist until a mitigation plan has been prepared, approved by the District, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric, who shall be identified by the Native American Heritage Commission [NAHC]). In consultation with the District, the archaeologist (and Native American representative) will determine when construction can resume.</p> <p>2. Discovery of human remains requires that all construction activities shall immediately cease at, and within 100 feet, of the location of discovery.</p> <p>a. The Contractor shall immediately notify Engineer who will engage a qualified archaeologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the proper personnel and shall not recommence work until authorized to do so by the Engineer.</p> <p>b. The District will contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC). 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 District for the appropriate means of treating the human remains and any associated funerary objects.</p> <p>E. If the District determines that the find requires further evaluation, at the direction of Engineer, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.</p>						
Cultural Resources c): Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Section 3.9 Protection of Cultural and Paleontological Resources (Details as previously listed)</p>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
Cultural Resources d): Potential to disturb any human remains, including those interred outside of formal cemeteries.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Section 3.9 Protection of Cultural and Paleontological Resources (Details as previously listed)</p>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
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Geology and Soils							
Geology and Soils a) Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.	EBMUD’s Engineering Standard Practices 512.1 and 550.1 EBMUD uses two primary Engineering Standard Practices for the design of water pipelines in its distribution system to address geologic hazards. Engineering Standard Practice 512.1, Water Main and Services Design Criteria, establishes basic criteria for the design of water pipelines and establishes minimum requirements for pipeline construction materials. Engineering Standard Practice 550.1, Seismic Design Requirements, addresses seismic design of the pipelines to withstand seismic hazards, including fault rupture, ground shaking, liquefaction-related phenomena, landslides, seiches and tsunamis and requires that EBMUD establish project-specific seismic design criteria for pipelines with a diameter of greater than 12 inches, such as the water mains that would be installed under the proposed Project.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
Geology and Soils b) Potential to result in substantial soil erosion or the loss of topsoil.	EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements Sections (1.1) (B) (1) to (1.1) (B) (12) 1.1 Description B. Site Activities 1. No debris including, but not limited to, demolition material, treated wood waste, stockpile leachate, soil, silt, sand, bark, slash, sawdust, asphalt, rubbish, paint, oil, cement, concrete or washings thereof, oil or petroleum products, or other organic or earthen materials from construction activities shall be allowed to enter into storm drains or surface waters or be placed where it may be washed by rainfall or runoff outside the construction limits. When operations are completed, excess materials or debris shall be removed from the work area as specified in the Construction and Demolition Waste Disposal Plan. 2. Excess material shall be disposed of in locations approved by the Engineer consistent with all applicable legal requirements and disposal facility permits. 3. Do not create a nuisance or pollution as defined in the California Water Code. Do not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Board or the State Water Resources Control Board, as required by the Clean Water Act. 4. Clean up all spills and immediately notify the Engineer in the event of a spill. 5. Stationary equipment such as motors, pumps, and generators, shall be equipped with drip pans. 6. Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas. Following completion of Work, ditches, dikes, or other ground alterations made by the Contractor shall be removed and the ground surfaces shall be returned to their former condition, or as near as practicable, in the Engineer’s opinion. 7. Maintain construction sites to ensure that drainage from these sites will minimize erosion of stockpiled or stored materials and the adjacent native soil material. 8. Furnish all labor, equipment, and means required and shall carry out effective measures wherever, and as often as necessary, to prevent Contractor’s operations from causing visible dust emissions to leave the work areas. These measures shall include, but are not limited to, providing additional watering equipment, reducing vehicle speeds on haul roads, restricting traffic on haul roads, covering haul vehicles, and applying a dust palliative to well-traveled haul roads. The Contractor shall provide the specifications of the dust palliative for Engineer approval prior to use. The Contractor shall be	EBMUD and EBMUD’s Contractor	EBMUD	During Construction			X

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Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	<p>responsible for damage resulting from dust originating from its operations. The dust abatement measures shall be continued for the duration of the Contract. Water the site in the morning and evening, and as often as necessary, and clean vehicles leaving the site as necessary to prevent the transportation of dust and dirt onto public roads. Dust control involving water shall be done in such a manner as to minimize waste and runoff from the site.</p> <p>9. Construction staging areas shall be graded, or otherwise protected with Best Management Practices (BMPs), to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters including wetlands, drainages, and creeks.</p> <p>10. All construction equipment shall be properly serviced and maintained in good operating condition to reduce emissions. Contractor shall make copies of equipment service logs available upon request.</p> <p>11. Any chemical or hazardous material used in the performance of the Work shall be handled, stored, applied, and disposed of in a manner consistent with all applicable federal, state, and local laws and regulations.</p> <p>12. Contaminated materials excavated and/or removed from the construction area shall be disposed of in a manner consistent with all applicable local, state, and federal laws and regulations.</p> <p>1.3 (A) Storm Water Management:</p> <p>2. Storm Water Pollution Prevention Plan (SWPPP)</p> <p>a. Submit a Stormwater Pollution Prevention Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and chlorine residual and all other contaminants known to exist at the jobsite location.</p>						

Greenhouse Gas Emissions

Greenhouse Gas Emissions a): Potential to generate annual GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>3.4. Emissions Control</p> <p>A. Air Quality and Emissions Control</p> <p>1. The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.</p> <p>2. The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.</p> <p>3. Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.</p> <p>4. Contractor shall implement standard air emissions controls such as:</p> <p>a. Minimize the use of diesel generators where possible.</p> <p>b. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage</p>	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X
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Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
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	<ul style="list-style-type: none"> shall be provided for construction workers at all access points. c. Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines. d. Locate generators at least 100 feet away from adjacent homes and ball fields. e. Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment. <p>Sections (3.4) (A) (5) (a-d)</p> <ul style="list-style-type: none"> a. On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals. b. Construction equipment engines shall be maintained to manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. c. All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of Oxide of Nitrogen (NOx) and Particulate Matter (PM). d. Demolition debris shall be recycled for reuse to the extent feasible. 						
Hazards and Hazardous Materials							
Hazards and Hazardous Materials a): Potential to create a significant hazard to human health and/or the environment involving the release of hazardous materials.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>1.3 (A) Storm Water Management:</p> <ul style="list-style-type: none"> 2. Storm Water Pollution Prevention Plan (SWPPP) <ul style="list-style-type: none"> a. Submit a Stormwater Pollution Prevention Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and chlorine residual and all other contaminants known to exist at the jobsite location. <p>1.3 (C) Construction and Demolition Waste Disposal Plan:</p> <ul style="list-style-type: none"> 1. Prepare a Construction and Demolition Waste Disposal Plan and submit a copy of the plan for the Engineer's acceptance prior to disposing of any material (except for water wastes which shall be addressed in the Water Control and Disposal Plan). <ul style="list-style-type: none"> a. The plan shall identify how the Contractor will remove, handle, transport, and dispose of all materials required to be removed under this contract in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the disposal of removed materials. b. The Contractor shall procure the necessary permits required by the local, state, and federal agencies having jurisdiction over the handling, transportation, and disposal of construction and demolition waste. c. Include a list of reuse facilities, recycling facilities and processing facilities that will be receiving recovered materials. d. Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations). g. List the permitted landfill, or other permitted disposal facilities that will be accepting the disposed waste materials. h. Identify each type of waste material to be reused, recycled or disposed of and estimate the amount, by weight. 	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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	<ol style="list-style-type: none"> i. Plan shall include the sampling and analytical program for characterization of any waste material, as needed, prior to reuse, recycle or disposal. 2. Materials or wastes shall only be disposed of at facilities approved of by the District. 3. Submit permission to reuse, recycle, reclaim, or dispose of material from reuse, recycling, reclamation, or disposal site owner along with any other information needed by the District to evaluate the acceptability of the proposed reuse, recycling, or disposal site and obtain acceptance of the Engineer prior to removing any material from the project site. 4. All information pertinent to the characterization of the material or waste shall be disclosed to the District and the reuse, recycling, reclamation, or disposal facility. Submit copies of any profile forms and/or correspondence between the Contractor and the reuse, recycling, reclamation, or disposal facility. 5. Submit name and Environmental Laboratory Accreditation Program Certificate number of laboratory that will analyze samples for suspected hazardous substances. Include statement of laboratory's certified testing areas and analyses that laboratory is qualified to perform. Submit prior to any laboratory testing. 						
	1.3 (D) Spill Prevention and Response Plan						
	<ol style="list-style-type: none"> 1. Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas. The plan shall include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products, and measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the Engineer and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup. 2. Submit a Material Safety Data Sheet (MSDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite. 						
	EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.3 (B) Project Safety and Health Plan:						
	<ol style="list-style-type: none"> 1. Submit prior to start of the Work for the Engineer's review a Project Safety and Health Plan for the Work to be performed only if actual, potential, or anticipated hazards include: a) hazardous substances; b) fall protection issues; c) confined spaces; d) trenches or excavations; or, e) lockout/tagout. If the actual, potential, or anticipated hazards do not include one or more of these five hazards, no Plan is required. 2. Submit prior to start of Work the name of individual(s) who has been designated as: <ol style="list-style-type: none"> a. Contractor's Project Safety and Health Representative b. Submit principal and alternate Competent/Qualified Persons for: <ol style="list-style-type: none"> 1) scaffolding; 2) fall protection systems and equipment; and 3) employee protective systems for trenches and excavations. c. Qualified person to conduct and take samples and air measurements of known or suspect hazardous substance for personnel and environmental exposure. Sample results shall be submitted to the Engineer in writing and electronic format. 3. Plan shall include an emergency action plan in the event of an accident, or serious unplanned event (e.g.: gasoline break, fire, structure collapse, etc.) that requires notifying any responsive agencies (e.g.: fire departments, PG&E, rescue teams, etc.). 						

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	1.4 Training Requirements						
	A. Ensure that all personnel who, as the result of work on this contract, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter. Establish minimum training requirements and do not allow untrained workers to enter or perform Work at the site.						
	EBMUD’s Environmental Compliance Manual	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X
	Section 3, Water Quality Protection, of the Environmental Compliance Manual describes how EBMUD complies with the National Pollutant Discharge Elimination System (NPDES) permit issued by the San Francisco Bay Regional Water Quality Control Board for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system. This section addresses water quality permitting issues related to facility discharges, potable water discharges, construction stormwater discharges, sanitary sewer overflows, and other activities within navigable waters such as streambed alterations, dredging, levee maintenance, and bank stabilization. Section 3.0, Water Quality Protection, of the EBMUD Environmental Compliance Manual also requires: <ul style="list-style-type: none"> • placement of BMPs (dechlorination tabs and sediment control) at all affected storm drains, even if there are no planned discharges, since unplanned discharges may occur at any time when working on pipelines containing chlorinated water; • photo documentation of all BMP installations; • documented calculation of the amount of dechlorination agent necessary to dechlorinate the planned discharge; • measurement and recording of the amount of dechlorination agent used; 						
	Section 9, Trench Spoils Field Management Practices, of the Environmental Compliance Manual includes a Trench Spoils Best Management Practices (BMP) program that describes procedures to be followed prior to and during projects to ensure that worker exposure to contaminants of concern is minimized and that spoils are disposed of properly. The Trench Spoils Field Management Practices require project site investigations, collection and analysis of soil, slurry and groundwater samples if deemed necessary by initial site investigations and database record searches, and, depending on the results of the sampling, advance soil, slurry and groundwater disposal arrangements.						
	EBMUD’s Standard Construction Specification 02 83 13, Lead Hazard Control Activities	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.1 Compliance and Intent						
	A. Furnish all labor, materials, facilities, equipment, services, employee training and testing, permits, and agreements necessary to perform the lead removal in accordance with these specifications and with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Air Quality Management District with authority over the project, the Cal/EPA Department of Toxic Substance Control, the California Occupational Safety and Health Administration (Cal/OSHA), and other federal, state, county, and local agencies. Whenever there is a conflict or overlap of the above references, the most stringent provision is applicable.						
	B. During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts. The costs associated with the implementation of controls will be incurred by the Contractor.						
	C. Any information developed from exploratory work done by the District and any investigation done by the Contractor to acquaint himself with available information will not relieve the Contractor from the responsibility of properly estimating the difficulty or cost of successfully performing the work. The District is not responsible for any conclusions or interpretations made by the Contractor based on the information made available by the District or District’s representative.						

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	D. Hazardous materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests shall be furnished to the Engineer as per Section 01 35 44, Environmental Requirements.						
	EBMUD’s Standard Construction Specification 02 82 13, Asbestos Control Activities	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.1 Compliance and Intent						
	A. Furnish all labor, materials, facilities, equipment, services, employee training and testing, permits, and agreements necessary to perform the asbestos removal in accordance with these specifications and with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bay Area Air Quality Management District (BAAQMD), the Cal/EPA Department of Toxic Substance Control, the California Department of Occupational Safety and Health (DOSH), and other federal, state, county, and local agencies. Whenever there is a conflict or overlap of the above references, the most stringent provision is applicable.						
	C. During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts. The Contractor will incur the costs associated with the implementation of controls and, if necessary, remediation. The Contractor shall be responsible for all necessary cleanup of contaminated areas/properties to pre-work condition and for all associated costs. It is the Contractor's responsibility to confirm and document the quantities of asbestos material to be removed.						
	D. Any information developed from exploratory work done by the District and any investigation done by the Contractor to acquaint himself with available information will not relieve the Contractor from the responsibility of properly estimating the difficulty or cost of successfully performing the work. The District is not responsible for any conclusions or interpretations made by the Contractor based on the information made available by the District or District's representative.						
	E. Asbestos materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests shall be furnished to the Engineer as per Sections 01 35 24 and 01 35 44.						
	F. Materials and equipment shall be stored in the areas as directed by the Engineer.						
	EBMUD’s Procedure 711, Hazardous Waste Removal				X	X	X
	This procedure defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. This procedure outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests.						
Hazards and Hazardous Materials b) Potential to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	Sections (1.3) (A) (C) (D) (Details as previously listed)						
	EBMUD’s Standard Construction Specification 01 35 24, Project Safety Requirements	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	Sections (1.3) (B) (Details as previously listed)						
	EBMUD’s Environmental Compliance Manual	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X
Section 3 (Details as previously listed) Section 9 (Details as previously listed)							
	EBMUD’s Standard Construction Specification 02 83 13, Lead Hazard Control Activities	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	Sections (1.1) and (1.2) (Details as previously listed)						

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Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
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	EBMUD’s Standard Construction Specification 02 82 13, Asbestos Control Activities Sections (1.1) and (1.2) (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	EBMUD’s Procedure 711, Hazardous Waste Removal (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
Hazards and Hazardous Materials h) Potential to expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	EBMUD’s Standard Construction Specification 01 35 24, Project Safety Requirements 1.6 Fire Prevention and Protection A. Perform all Work in a fire safe manner and supply and maintain on the site adequate firefighting equipment capable of extinguishing incipient fires. Comply with applicable federal, local, and state fire prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X

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Hydrology and Water Quality							
Hydrology and Water Quality a): Potential to violate water quality standards or waste discharge requirements.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Sections (1.1) (B) (1) to (1.1) (B) (12)</p> <p>1.1 Description</p> <p>B. Site Activities</p> <ol style="list-style-type: none"> No debris including, but not limited to, demolition material, treated wood waste, stockpile leachate, soil, silt, sand, bark, slash, sawdust, asphalt, rubbish, paint, oil, cement, concrete or washings thereof, oil or petroleum products, or other organic or earthen materials from construction activities shall be allowed to enter into storm drains or surface waters or be placed where it may be washed by rainfall or runoff outside the construction limits. When operations are completed, excess materials or debris shall be removed from the work area as specified in the Construction and Demolition Waste Disposal Plan. Excess material shall be disposed of in locations approved by the Engineer consistent with all applicable legal requirements and disposal facility permits. Do not create a nuisance or pollution as defined in the California Water Code. Do not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Board or the State Water Resources Control Board, as required by the Clean Water Act. Clean up all spills and immediately notify the Engineer in the event of a spill. Stationary equipment such as motors, pumps, and generators, shall be equipped with drip pans. Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas. Following completion of Work, ditches, dikes, or other ground alterations made by the Contractor shall be removed and the ground surfaces shall be returned to their former condition, or as near as practicable, in the Engineer’s opinion. Maintain construction sites to ensure that drainage from these sites will minimize erosion of stockpiled or stored materials and the adjacent native soil material. Furnish all labor, equipment, and means required and shall carry out effective measures wherever, and as often as necessary, to prevent Contractor’s operations from causing visible dust emissions to leave the work areas. These measures shall include, but are not limited to, providing additional watering equipment, reducing vehicle speeds on haul roads, restricting traffic on haul roads, covering haul vehicles, and applying a dust palliative to well-traveled haul roads. The Contractor shall provide the specifications of the dust palliative for Engineer approval prior to use. The Contractor shall be responsible for damage resulting from dust originating from its operations. The dust abatement measures shall be continued for the duration of the Contract. Water the site in the morning and evening, and as often as necessary, and clean vehicles leaving the site as necessary to prevent the transportation of dust and dirt onto public roads. Dust control involving water shall be done in such a manner as to minimize waste and runoff from the site. Construction staging areas shall be graded, or otherwise protected with Best Management Practices (BMPs), to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters including wetlands, drainages, and creeks. All construction equipment shall be properly serviced and maintained in good operating condition to reduce emissions. Contractor shall make copies of equipment service logs available upon request. 	EBMUD and EBMUD’s Contractor	EBMUD	During Construction			X

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	11. Any chemical or hazardous material used in the performance of the Work shall be handled, stored, applied, and disposed of in a manner consistent with all applicable federal, state, and local laws and regulations. 12. Contaminated materials excavated and/or removed from the construction area shall be disposed of in a manner consistent with all applicable local, state, and federal laws and regulations.						
	EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.3 (A) Storm Water Management: <ul style="list-style-type: none"> 2. Storm Water Pollution Prevention Plan (SWPPP) <ul style="list-style-type: none"> a. Submit a Stormwater Pollution Prevention Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and chlorine residual and all other contaminants known to exist at the jobsite location. 						
	1.3 (B) Water Control and Disposal Plan: <ul style="list-style-type: none"> 1. The Contractor shall submit a detailed Water Control and Disposal Plan for the Engineer's acceptance prior to any work at the jobsite. <ul style="list-style-type: none"> a. Plan shall comply with all requirements of the Specification and applicable discharge permits. b. Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters. 2. Drinking Water System Discharges <ul style="list-style-type: none"> a. Plan shall include the estimated flow rate and volume of all proposed discharges to surface waters, including discharges to storm drains. All receiving waters shall be clearly identified. b. Contractor shall track all discharges directly to a surface water body or a storm drain system that drains to a surface water body. A record consisting of discharge locations and volumes shall be submitted to the Engineer prior to contract acceptance. c. A monitoring program is required for drinking water system discharges greater than 325,850 gallons in conformance with Attachment E, Monitoring and Reporting Program, of the General Drinking Water Discharges Permit, when the water will be discharged either directly into a surface water body or a storm drain system that drains to a surface water body. A record consisting of discharge locations, volumes and WQ data shall be submitted to the Engineer. The Planned Discharge Tracking Form attached to the end of this section, may be used to fulfill this requirement. All monitoring results shall be submitted to the Engineer prior to contract acceptance. d. Contractor shall dechlorinate all drinking water system discharges to achieve a total chlorine residual concentration of < 0.1 mg/L measured with a handheld chlorine meter utilizing a US EPA approved method and provide effective erosion & sediment control to achieve a visual turbidity concentration of ≤ 100 NTU by implementing BMPs which meet the District minimum standards or better. e. Instead of discharging to surface waters, where feasible, Contractor shall beneficially reuse water derived from drinking water systems as defined in the General Drinking Water Discharges Permit. Potential reuse strategies include, but are not limited to, landscape irrigation, agricultural irrigation, dust control, and discharge to stormwater capture basins or other groundwater recharge systems. Contractor shall do so without impacting property or the environment. Contractor shall provide a record of reuse location(s) and volume(s) and submit it to the Engineer prior to contract acceptance. 						

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	<p>f. Contractor shall ensure that the pH level of any discharges shall not be depressed below 6.5 nor raised above 8.5. If there is potential for discharges to be below 6.5 or above 8.5, Contractor shall employ pH adjustment best management practices to ensure discharges are within the range of 6.5 and 8.5. Contractor shall conduct onsite field measurements for pH per quality assurance and quality control (QA/QC) protocol that conform to U.S. EPA guidelines, or procedures approved by the American Water Works Association or other professional drinking water industry association. Contractor shall submit all monitoring results to the Engineer prior to contract acceptance.</p> <p>3. Non-Stormwater Discharges</p> <p>a. Plan shall describe measures for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water or other liquid that has been in contact with any interior surfaces of District facilities. Contractor shall provide the Engineer with containment, handling, treatment and disposal designs and a sampling & analysis plan for approval before commencing the Work.</p> <p>1.3 (D) Spill Prevention and Response Plan</p> <p>1. Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas. The plan shall include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products, and measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the Engineer and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup.</p> <p>2. Submit a Material Safety Data Sheet (MSDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite.</p>						
	<p>EBMUD’s Environmental Compliance Manual</p> <p>Section 3, “Water Quality Protection,” of the Environmental Compliance Manual describes how EBMUD complies with the National Pollutant Discharge Elimination System (NPDES) permit issued by the San Francisco Bay Regional Water Quality Control Board for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system. This section addresses water quality permitting issues related to facility discharges, potable water discharges, construction stormwater discharges, sanitary sewer overflows, and other activities within navigable waters such as streambed alterations, dredging, levee maintenance, and bank stabilization.</p>	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X
Hydrology and Water Quality c) and d): Potential to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site; or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Sections (1.3) (A); (1.3) (B) (Details as previously listed)</p>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction		X	X

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Hydrology and Water Quality e) and f): Potential to create or contribute runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Or otherwise substantially degrade water quality.	EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements Sections (1.1) (B) (1); (1.3) (A, B and D) (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
	EBMUD’s Environmental Compliance Manual Section 3 (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
	EBMUD’s Engineering Standard Practices 512.1 and 550.1 EBMUD uses two primary Engineering Standard Practices for the design of water pipelines in its distribution system to address geologic hazards. Engineering Standard Practice 512.1, Water Main and Services Design Criteria, establishes basic criteria for the design of water pipelines and establishes minimum requirements for pipeline construction materials. Engineering Standard Practice 550.1, Seismic Design Requirements, addresses seismic design of the pipelines to withstand seismic hazards including fault rupture, ground shaking, liquefaction-related phenomena, landslides, seiches and tsunamis and requires that EBMUD establish project-specific seismic design criteria for pipelines with a diameter of greater than 12 inches, such as the water mains that would be installed under the proposed project.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
Hydrology and Water Quality i): Potential to 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.	EBMUD’s Reservoir Design Guide The EBMUD Reservoir Design Guide details design guidelines that apply to the design and construction of bolted-steel tanks. Section 4.2.1, Codes and Design Standards, of the Reservoir Design Guide lists the building codes and design references to be used during construction of bolted-steel tanks to ensure compliance with current engineering practice and standards.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
	Noise						
Noise a) Potential for 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.	EBMUD’s Standard Construction Specification 01 14 00, Work Restrictions 1.4 Work Hours A. Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday. D. Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours 9:00 a.m. and 4:00 p.m. 1.8 Construction Noise A. Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements 3.5 Vibration Control A. Limit surface vibration to no more than 0.5 in/sec PPV, measured at the nearest residence or other sensitive structure. See Section 01 14 00. B. Upon homeowner request, and with homeowner permission, the District will conduct preconstruction surveys of homes, sensitive structures and other areas of concern within 15 feet of continuous vibration-	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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	generating activities (i.e. vibratory compaction). Any new cracks or other changes in structures will be compared to preconstruction conditions and a determination made as to whether the proposed project could have caused such damage. In the event that the project is demonstrated to have caused the damage, the District will have the damage repaired to the pre-existing condition.						
	<p>3.6 Noise Control</p> <p>A. Comply with sound control and noise level rules, regulations and ordinances as required herein and in the CEQA documents which apply to any work performed pursuant to the contract.</p> <p>B. Contractor is responsible for taking appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance.</p> <p>C. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.</p> <p>D. Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) shall be used for all equipment and trucks, as necessary.</p> <p>E. Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours specified in Section 01 14 00.</p> <p>F. Stationary noise sources (e.g., chippers, grinders, compressors) shall be located as far from sensitive receptors as possible. If they must be located near receptors, adequate muffling (with enclosures) shall be used. Enclosure opening or venting shall face away from sensitive receptors.</p> <p>G. Material stockpiles as well as maintenance/equipment staging and parking areas (all on-site) shall be located as far as practicable from residential receptors.</p> <p>H. If impact equipment (e.g., jack hammers, pavement breakers, rock drills etc.) is used during project construction, Contractor is responsible for taking appropriate measures, including but not limited to the following:</p> <ol style="list-style-type: none"> 1. Hydraulically or electric-powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about 10 dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of 5 dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible. It is the Contractor’s responsibility to implement any mitigations necessary to meet applicable noise requirements. 2. Impact construction including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers shall be limited to the day time hours specified in Section 01 14 00. 3. Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings. 4. Utilize noise control blankets around the major noise sources to reduce noise emission from the site. 5. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example. 						

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	6. Limit the noisiest phases of construction to 10 work days at a time, where feasible.						
	7. Notify neighbors/occupants within 300 feet of project construction at least thirty days in advance of extreme noise generating activities about the estimated duration of the activity.						
	8. Noise Monitoring shall be conducted periodically during noise generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to the Engineer.						
	EBMUD’s Standard Construction Specification 01 14 00 Work Restrictions	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction		X	X
	1.4 Work Hours						
	A. Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday.						
	D. Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours 9:00 a.m. and 4:00 p.m.						
	1.8 Construction Noise						
	A. Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.						
Noise d): Potential for substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction		X	X
	Section (3.6) (A-I) (Details as previously listed)						
Transportation/Traffic							
Transportation/Traffic a): Potential to 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.	EBMUD’s Standard Construction Specification 01 14 00 Work Restrictions	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.4 Work Hours						
	A. Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday.						
	D. Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours 9:00 a.m. and 4:00 p.m.						
	1.8 Construction Noise						
	A. Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.						

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	EBMUD’s Standard Construction Specification 01 55 26, Traffic Regulation	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.2 Submittals						
	A. Submit at least 15 days prior to work a detailed traffic control plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications. Traffic Control Plan shall include:						
	1. Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.						
	2. A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.						
	3. Procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling.						
	4. Designated Contractor staging areas on or adjacent to the worksite for storage of all equipment and materials, in such a manner to minimize obstruction to traffic.						
	5. Locations for parking by construction workers.						
Transportation/Traffic b): Potential to conflict with an applicable congestions management program, including but not limited to level of service demands and travel demand measures, or other standards established by the county congestion management agency for designated roads and or highways.	EBMUD’s Standard Construction Specification 01 55 26, Traffic Regulation Section (1.2) (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	EBMUD’s Standard Construction Specification 01 14 00, Work Restrictions Section (1.4) (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
Transportation/Traffic d): Potential to substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	EBMUD’s Standard Construction Specification 00 31 21.13, Site Survey Information 1.2 Site Survey Audio-Video Recording Requirements	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	A. Pre-Construction Survey: The Contractor shall, in the presence of the Engineer, perform a Pre-Construction Site Survey audio-video recording of the complete project alignment and all access and haul routes to be utilized during construction. The survey shall fully document the conditions of pavements and public and private improvements within the limits of work. Prior to commencement of the Pre-Construction Survey recording, the Contractor shall notify the Engineer in writing within 48-hours of the recording. The District may provide a designated representative to accompany and observe all audio-video recording operations. Audio-video recording completed without a District Representative present will be unacceptable unless specifically authorized by the District.						
	B. The format of the site survey shall be a digital audio-video file in mp4, avi, or mpg with narrative, supplemented with photographs and field notes as appropriate.						
	C. Provide a copy of the pre-construction survey to the District for review and comment.						
	D. The Contractor shall employ a qualified videographer, experienced in taking properly documented and annotated video to take a Pre-Construction recording of the entire site including the areas of adjacent properties and shall be made within 30-days of Work beginning.						
	E. The Contractor shall submit a quality audio-video recording documenting Pre-Construction field conditions for the entire project. When the Work includes construction of water, wastewater, recycle,						

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Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
Transportation/Traffic e): Potential to Result in inadequate emergency access.	<p>or other lines in the vicinity of any street or road, the Contractor shall take digital audio-video recordings of existing conditions along both sides of the street or road. The finalized pre-construction audio-video recording shall be submitted to the District and accepted prior to commencing any Work or using any Contractor laydown areas.</p> <p>F. Post-Construction Survey: The Contractor shall, in the presence of the Engineer, perform a Post-Construction Site Survey audio-video recording of the same areas recorded in the Pre-Construction Survey. The Engineer will review post-construction survey findings with the Contractor and develop a complete listing of project site restoration requirements to be accomplished by the Contractor. Prior to commencement of Post-Construction Survey recording, the Contractor shall notify the Engineer in writing within 48-hours of the recording. The District may provide a designated representative to accompany and observe all audio-video recording operations. Audio-video recording completed without a District Representative present will be unacceptable unless specifically authorized by the District. The Contractor shall be responsible for repairing any damage or defect not documented as existing prior to construction.</p> <p>EBMUD’s Standard Construction Specification 01 55 26, Traffic Regulation</p> <p>1.2 Submittals</p> <p>A. Submit at least 15 days prior to work a detailed traffic control plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications. Traffic Control Plan shall include:</p> <ol style="list-style-type: none"> 1. Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. 2. A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included. 3. Procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling. 4. Designated Contractor staging areas on or adjacent to the worksite for storage of all equipment and materials, in such a manner to minimize obstruction to traffic. 5. Locations for parking by construction workers. <p>3.1 General (Execution)</p> <ol style="list-style-type: none"> A. Except where public roads have been approved for closure, traffic shall be permitted to pass through designated traffic lanes with as little inconvenience and delay as possible. B. Install temporary traffic markings where required to direct the flow of traffic. Maintain the traffic markings for the duration of need and remove by abrasive blasting when no longer required. C. Convenient access to driveways and buildings in the vicinity of work shall be maintained as much as possible. Temporary approaches to, and crossing of, intersecting traffic lanes shall be provided and kept in good condition. D. When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic. E. Provide temporary signs as required by the traffic control plan and remove signs when no longer required. 	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

¹ In EBMUD Standard Specifications, “District” = EBMUD; “Engineer” = EBMUD Engineer; “Contractor” = EBMUD Contractor; “Work” = Scope of Work for the Project

Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures ¹	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	<ul style="list-style-type: none"> F. Haul routes for each construction phase shall be provided to all trucks serving the site during the construction period. G. For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles. H. A minimum of twelve (12) foot travel lanes must be maintained unless otherwise approved. 						
Utilities and Service Systems							
Utilities and Service Systems f): Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>1.3 (C) Construction and Demolition Waste Disposal Plan:</p> <ol style="list-style-type: none"> 1. Prepare a Construction and Demolition Waste Disposal Plan and submit a copy of the plan for the Engineer's acceptance prior to disposing of any material (except for water wastes which shall be addressed in the Water Control and Disposal Plan). <ol style="list-style-type: none"> a. The plan shall identify how the Contractor will remove, handle, transport, and dispose of all materials required to be removed under this contract in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the disposal of removed materials. b. The Contractor shall procure the necessary permits required by the local, state, and federal agencies having jurisdiction over the handling, transportation, and disposal of construction and demolition waste. c. Include a list of reuse facilities, recycling facilities and processing facilities that will be receiving recovered materials. d. Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations). g. List the permitted landfill, or other permitted disposal facilities that will be accepting the disposed waste materials. h. Identify each type of waste material to be reused, recycled or disposed of and estimate the amount, by weight. i. Plan shall include the sampling and analytical program for characterization of any waste material, as needed, prior to reuse, recycle or disposal. 2. Materials or wastes shall only be disposed of at locations approved of by the District. 3. Submit permission to reuse, recycle, reclaim, or dispose of material from reuse, recycling, reclamation, or disposal site owner along with any other information needed by the District to evaluate the acceptability of the proposed reuse, recycling, or disposal site and obtain acceptance of the Engineer prior to removing any material from the project site. 4. All information pertinent to the characterization of the material or waste shall be disclosed to the District and the reuse, recycling, reclamation, or disposal facility. Submit copies of any profile forms and/or correspondence between the Contractor and the reuse, recycling, reclamation, or disposal facility. 5. Submit name and Environmental Laboratory Accreditation Program Certificate number of laboratory that will analyze samples for suspected hazardous substances. Include statement of laboratory's certified testing areas and analyses that laboratory is qualified to perform. Submit prior to any laboratory testing. 	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X

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