

Alternatives, Including the Proposed Action

Chapter 2

Alternatives, Including the Proposed Action

2.1 Introduction

NEPA refers to the activity evaluated in an EA as the proposed *action* by a federal entity, whereas CEQA refers to the activity as a proposed *project* undertaken, supported, or permitted by a local public agency.

As discussed in Chapter 1, the proposed federal *action* is the provision of federal funds by the Bureau under the Title XVI Program to the District for the implementation of the ARWTF examined in this EA/IS-MND. The Bureau is the NEPA lead agency for this proposed action and intends to use this EA/IS-MND to consider provision of federal funding under Title XVI for construction of the ARWTF.

The CEQA proposed *project* refers to the whole of the proposed action that has the potential to result in a physical change to the environment, which, in this case, is the ARWTF and all appurtenant facilities examined in this EA/IS-MND. The District and the City are respectively the CEQA lead agency and the responsible agency under CEQA. Both agencies intend to use the EA/IS-MND to consider approval of the project.

For the purposes of this document, in addition to the use of the above terminology, the terms “proposed project” is used to refer to all federal and local agency actions or approvals that would be issued or undertaken based on it.

2.2 No Action/No Project Alternative

Whereas CEQA does not require the analysis of alternatives in an IS-MND, an EA must discuss alternatives, including a No Action Alternative, as required under Section 102(2)(E) of NEPA (42 U.S.C. §4332(2)). The No Action/No Project Alternative examines the future without project conditions, that is, the future if the proposed action is not implemented or constructed. In the context of this EA/IS-MND, “no action” means that the proposed ARWTF would not be implemented.

2.3 Proposed Project and North Site Alternatives

In addition to the No Action/No Project Alternative, two build alternatives are being considered for the project: the Proposed Project Alternative and the North Site Alternative. Because the facility under the Proposed Project Alternative would be located adjacent to the TPS and would require shorter and more direct pipeline connections to the TPS, it is presented in this document as the proposed project. Under the North Site Alternative, the facility would be more difficult to implement due to its greater distance from the TPS; consequently, it is presented in this document as an alternative to the proposed project. Under both alternatives, the ARWTF would have the same components; however, the facility as a whole would be oriented differently to facilitate access from the unpaved service road (informally referred to in this document as the “sludge pond access road”) that provides access to the lagoons east of Zanker Road. Figures 2-1 and 2-2 show the layout of the ARWTF at the proposed and alternate location.

Site Location

Under both build alternatives, the ARWTF project site – that is, the fenced in portion of the site, including all proposed structures, paved areas, and site landscaping – would be approximately 200,000 square feet (sq ft), or 4.6 acres (ac), in size and would occupy the northwestern corner of a large parcel (APN# 015-31-063) in northern San Jose. This parcel is currently owned by the City of San Jose and would remain under City ownership even if the project were implemented. If approved, the District would be responsible for overseeing the construction of the ARWTF, as well as operating and maintaining the facility.

In general, the facility under either alternative would have the same design but would occupy two different sites, which, for the purposes of this document, will be referred to as the “proposed site” and the “alternate site.” The proposed site consists of a relatively flat, open area adjacent to the SBWR TPS, which is bordered to the north by the sludge pond access road, to the east by an existing drainage ditch, and to the west by the TPS. Zanker Road and the SJ/SC WPCP lie further to the west beyond the site boundary, which is currently enclosed by a chain link fence.

The alternate site is located approximately 50 feet north of the proposed site and northeast of the SBWR TPS. This site consists of a large vacant parcel that is bordered to the north and east by a series of sludge ponds, to the east by an existing drainage ditch, to the west by a large aluminum storage shed, and to the south by the sludge pond access road. Zanker Road and the SJ/SC WPCP lie further to the west beyond the site boundary, which is currently enclosed by a chain link fence. The ARWTF would be constructed a short distance from the maintenance road and levee that follows the perimeter of an existing sludge pond.



Source: Black & Veatch

00077.07 SCWWD Advanced Recycled Water EA-JS (11-09) SS

**Figure 2-1
Proposed Site Layout**



Source: Black & Veatch

Figure 2-2
North Site Layout

Project Overview

The ARWTF would have a peak production capacity of up to 10 MGD. As under current conditions, the SBWR TPS would continue to provide a maximum pumping capacity of 40 MGD under normal operating conditions and 48 MGD with all duty and standby pumps fully operational. The ARWTF would consist of a series of discrete structures to house the various components of the facility, as well as several isolated storage tanks and miscellaneous yard structures (Figure 2-1 and 2-2). Based on preliminary design, the proposed facility would be composed of approximately 105,000 sq ft of impermeable area. Of this, approximately 65,000 sq ft of area would be occupied by structures, including the following.

- A process structure with a pre-engineered metal building to house the MF, RO, and UV systems as well, an electrical/control room for electrical service equipment, a storage room, a maintenance room, and a compressed air system room;
- Two welded steel above grade storage tanks, including an inter-process storage tank and a product water storage tank, which would be supported on 14-inch precast, prestressed, reinforced concrete piles;
- A waste equalization tank of either concrete, welded steel, or fiberglass reinforced plastic (FRP) design, which would be supported on 14-inch precast, prestressed, reinforced concrete piles;
- Several reinforced concrete containment areas for the chemical storage and feed facilities, and MF/RO cleaning facilities, which would be housed under a pre-engineered canopy;
- Pad mounted influent pump station with autostrainers;
- Pad mounted RO transfer pumps and cartridge filters;
- Pad mounted RO feed pumps;
- Pad mounted decarbonation towers/blowers and UV feed pumps;
- Pad mounted waste pumps;
- An external electrical control facility; and
- Other miscellaneous yard structures.

Additionally, a paved access driveway with a surface area of approximately 40,000 sq ft would provide access to the various onsite structures, including the tanks, process building, pump stations, and chemical areas. The driveway would allow one-way movement of service vehicles and equipment through the site. Concrete pads would be provided along the driveway to facilitate the movement trucks unloading chemicals to the bulk chemical storage tanks. To accommodate parked vehicles, a paved parking area with several spaces would also be located adjacent to the ARWTF. The area would likely be located adjacent to or north of the RO feed pumps; however the exact location of the parking area has not been determined at this time.

Because the ARWTF would be both transporting waste by-products from the treatment process and receiving treated secondary effluent from the SJ/SC WPCP, the proposed ARWTF project would employ several major off-site pipelines, including an influent pipeline, RO concentrate pipeline, and a waste pipeline (Figure 2-3).

For security purposes, a chain link fence would be provided around the site perimeter. A variety of interior and exterior lights would also be provided to enhance security around the site. These would include T8-type fluorescent light fixtures for building interiors and low pressure sodium lamps equipped with photocells for outdoor lighting. Security and fire alarm systems would also be installed in buildings to meet current code requirements.

The site would be graded from an existing average elevation of 7 feet above mean sea level (MSL) to an elevation of 10 feet above MSL to raise the site above the existing 100-year floodplain. The required fill would be obtained from offsite, and prior to placing fill, the upper 12 inches of site soils containing vegetation, small roots, and other deleterious organic matter would be stripped and removed from the site. Subsequently, foundation construction, including excavations and backfilling and pile driving, would be required to support the facilities. This would be followed by utilities installation and facility and roadway constructions.

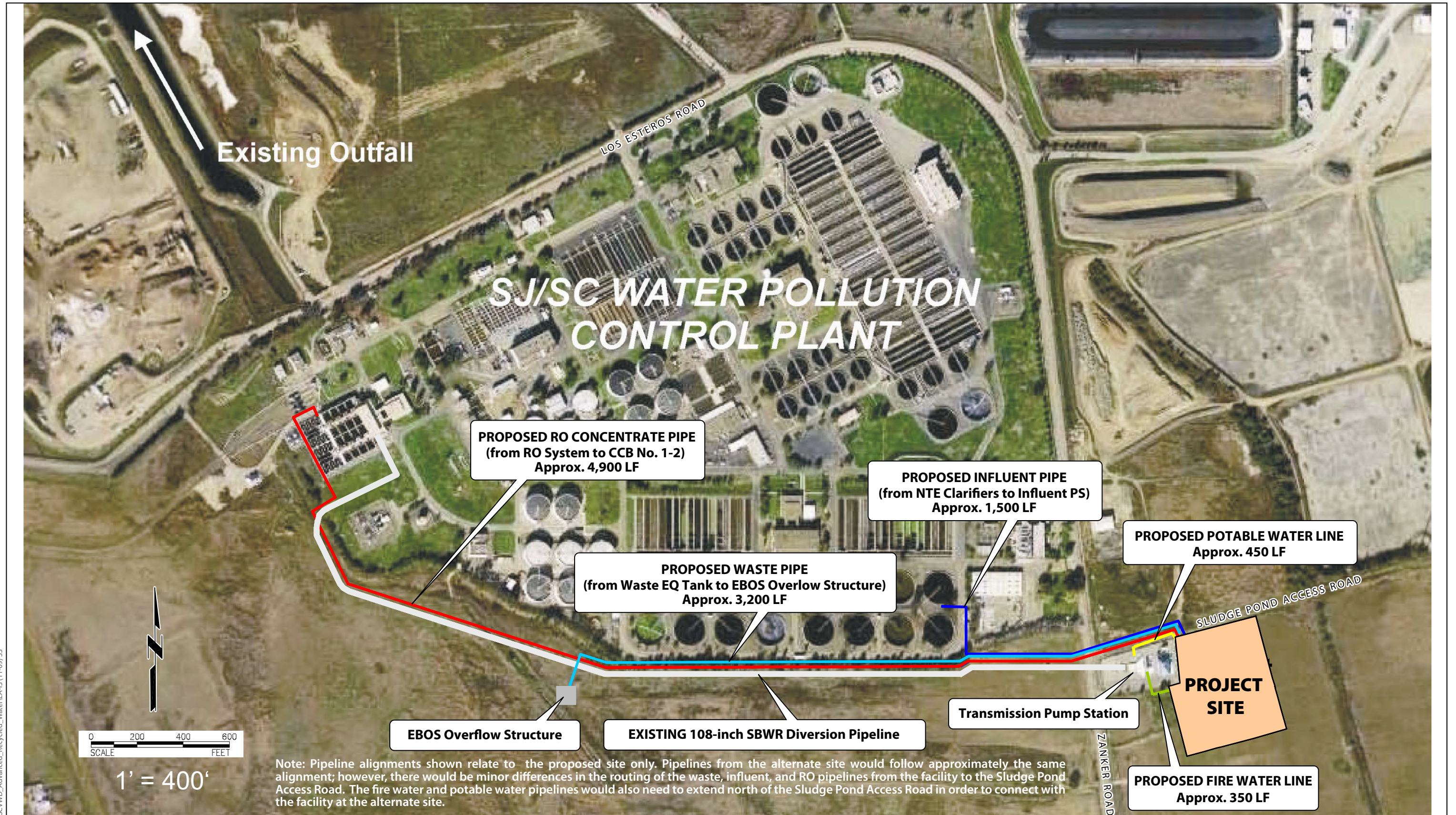
As described above, several facilities would be supported by piles on the site, with the maximum piling depth extending to 80 feet below ground surface (bgs). Pile-supported facilities would include the following:

- Waste equalization tank
- Inter-process storage tank
- Threshold inhibitor tank
- Sulfuric acid storage tank
- Sodium hydroxide tank
- RO feed pump station
- Product water storage tank

Additionally, some excavation would be required for installation of the pipeline facilities and could be required for the waste equalization tank if constructed below grade. In general, pipeline excavations would extend to a maximum depth of 8 feet bgs. Excavation required for the waste tank, if designed as a below grade facility, would extend to 20 feet bgs.

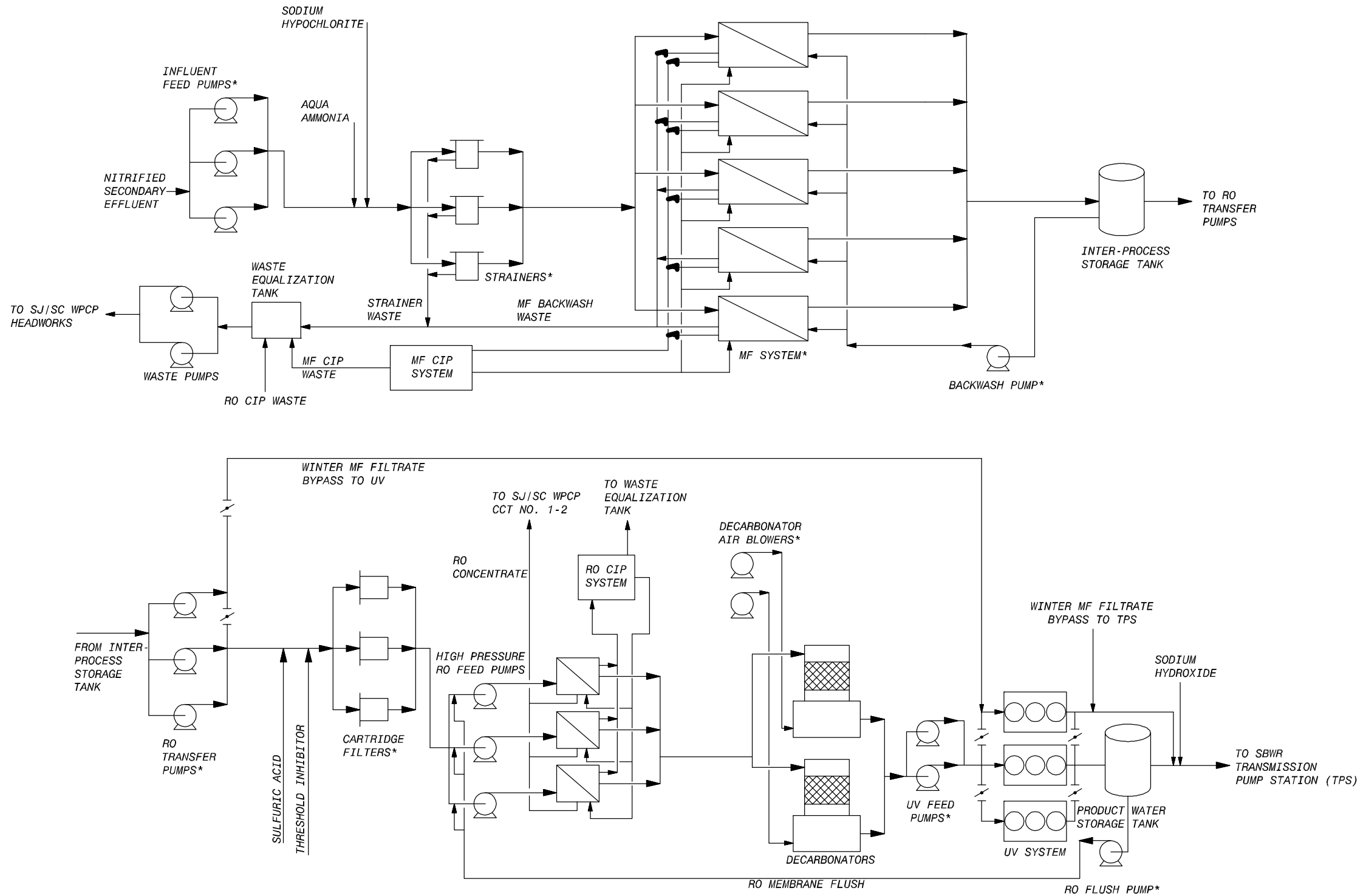
To avoid ponding of rainfall on paved surfaces onsite, construction of the final grades and pavements would be sloped to direct surface water to the perimeter of the site, away from the foundations and slabs. Unpaved areas of the site may be lined with crushed rock to promote infiltration of stormwater into the underlying soil. All site grading would be conducted in accordance with the City's grading and drainage requirements.

Water utility service for the ARWTF would include potable water, wastewater, stormwater, and a dedicated water supply for fire suppression purposes. The



Source: Black & Veatch

Figure 2-3
Proposed Pipe Alignments



* ONLY DUTY UNITS ARE SHOWN.

facility would also be provided with telephone service and electricity. Power would come from PG&E via an existing overhead 21kV line that runs along the Sludge Pond Access Road north of the proposed site.

Project Characteristics

The ARWTF would take secondary effluent from the SJ/SC WPCP and produce high-purity recycled water using MF, RO, and UV disinfection. Treated recycled water from the ARWTF would be conveyed to the existing SBWR TPS located adjacent to the ARWTF via a new product water pipeline. The ARWTF treatment processes are described below and shown in Figure 2-4.

- 1) Influent pumps would provide the required pressure and would convey secondary effluent to the automatic strainers to provide MF pretreatment.
- 2) Sodium hypochlorite and aqua ammonia would be added to the MF feed stream to take up any free chlorine by forming a monochloramine residual to protect the downstream RO membranes. The MF chemicals would be added upstream of the autostrainers to provide for adequate mixing.
- 3) Suspended and colloidal solids would be removed by the MF membranes, providing the downstream RO membranes with a stable, high-quality feed stream.
- 4) The MF filtrate would be stored in an inter-process storage tank for stabilization and could also be used as a supply for backwashing of the MF/UF membranes.
- 5) MF filtrate from the inter-process storage tank would be pumped through the cartridge filters and pumped again by high-pressure RO feed pumps to the RO membranes.
- 6) Chemicals (threshold inhibitor and sulfuric acid) would be added to the RO feed stream to minimize scaling of the RO membranes. These RO chemicals would be added upstream of the cartridge filters to provide proper mixing.
- 7) RO permeate would be sent through a decarbonation system to strip out carbon dioxide (thus, increasing pH) in the acidified water. The permeate would then be pumped through the UV system for disinfection and then into the product water storage tank. The final product water would be dosed with sodium hydroxide (to increase pH and minimize corrosion in the recycled water distribution pipeline). The product water would then be blended with the existing recycled water supply at the SBWR TPS.
- 8) Waste streams from the autostrainers, MF backwash sequence and MF clean-in-place (CIP) sequence, as well as waste from the RO CIP sequence and RO system shut-down flush wastes would be collected at a waste equalization tank and conveyed to the SJ/SC WPCP headworks.

- 9) The RO reject stream would re-enter the SJ/SC WPCP treatment system upstream of the existing serpentine chlorine contact tanks, where it would be blended with the SJ/SC WPCP effluent for discharge to the Bay.

Project Components

Influent Pump Station, Automatic Strainers, Waste Equalization Tank, and Waste Pumps

The ARWTF influent pump station would consist of duty pumps, standby pumps, and automatic strainers. Prior to entering the MF system, secondary effluent would be pumped through the automatic backwashing strainers for fine screening to protect the MF membranes from large debris in the feed stream that could damage the membranes. Waste backwash from the strainers would be collected at the waste equalization tank, from where would be pumped (using waste pumps) to the headworks at the SJ/SC WPCP. Waste pumps would be required if the contents of the waste equalization tank cannot be sent to a gravity sewer. The waste equalization tank would have a storage capacity of 55,000 gallons and would be approximately 25 feet in diameter and 20 feet in height. The above grade waste equalization tank would be made of concrete, welded steel, or FRP, and would sit on a pile foundation.

MF System

Membrane technology in water and wastewater treatment utilizes a semi-permeable membrane for the separation of suspended and colloidal solids from wastewater. MF is a solid-liquid separation process that uses membranes with pore diameters greater than 0.05 micrometers (μm) in diameter. It can retain suspended particles, bacteria, colloids, and some ions after absorption by larger particles through precipitation or flocculation (Zhou and Smith 2002).

The proposed MF system at the ARWTF would consist of the following components:

- Membrane Units
- Membrane Backwash system
- Membrane CIP system
- Compressed air and blower systems
- Instrumentation and control (I&C) system

Membrane Units

Membrane units would consist of pressurized, hollow fiber MF membrane modules and interconnecting piping installed on several skids or racks. Each skid would be mounted to the floor of the process building.

Backwash System

The backwash system would involve a combination of air scour and the reversal of filtrate flow through the membrane fibers on a regular basis (approximately 15-30 minute cycle) to remove particles from the membrane surface and restore the permeability of the membrane. The backwash system typically consists of a filtrate storage tank and backwash pumps.

Clean-in-Place (CIP) System

A CIP system would be required to periodically clean the MF membranes in-situ when the backwash system is no longer effective in removing foulants from the membrane surface. The cleaning system would consist of CIP solution tank(s), recirculation pumps, and chemical feed systems. In addition, a neutralization system (consisting of a tank and mixing pump) would be stored in this structure. The MF CIP facility would be located in a concrete chemical containment area and covered by a canopy. Spent CIP chemical solutions would be neutralized and then collected at the waste equalization tank. Membrane cleaning chemicals include small volumes of sodium hypochlorite, citric acid, sodium hydroxide, and possibly sulfuric acid.

Compressed Air and Blower Systems

Compressed air would be used in the MF system for both control and process service. Compressed air would be required for pneumatic control of valves and for test air used for verification of membrane integrity. Process air use would be required for scour air used as part of the membrane backwash process and test air used for verification of membrane integrity. The compressed air system would consist of air compressors, an air receiver tank, and a unit mounted pneumatic control panel.

Inter-Process Storage Tank

An inter-process storage tank would be provided between the MF and RO systems to equalize the MF filtrate prior to being fed through the RO system. The inter-process storage tank would also provide filtrate supply for the backwash pumps. The inter-process storage tank would consist of an aboveground cylindrical steel tank approximately 40 feet in diameter, 30 feet high, and with a 225,000-gallon capacity. The tank would be supported on 14-inch precast, prestressed, reinforced concrete piles.

Reverse Osmosis System

Reverse Osmosis (RO) membrane filtration typically uses membranes with pore diameters of less than 0.001 μm to retain solutes from process water (Zhou and Smith 2002). The ARWTF RO system would have a spiral wound configuration to promote turbulence, thereby reducing biofouling and particle cake deposition. The RO system would include a high-pressure RO feed water delivery system, RO flush system, and RO CIP system.

RO Feed Water Delivery System

RO transfer pumps would be used to pump the MF filtrate stored in the inter-process storage tank through the cartridge filters, which protect the RO membranes from long-term particulate fouling. After the RO feed stream passes through the cartridge filters, high pressure RO feed pumps would boost the pressure (150 – 300 pounds per square inch range) of the RO feed to the RO membranes.

RO Trains

Individual membrane elements would be arranged in a series of tubes (pressure vessels) to form a train. Each RO train would, in turn, be served by its own dedicated high-pressure feed pump.

RO Membrane Flush System

The RO membrane flush system would consist of a horizontal centrifugal water pump to remove residual feed water retained in the membrane elements when an RO train is inactive. The flush pump would draw suction from the product water storage tank.

RO Clean-in-Place System

Similar to the MF system, periodic cleaning of the RO membrane elements using formulated solution would be required to restore permeability. Prepared cleaning solutions would be heated and circulated through the RO train using the RO CIP circulation pumps. The RO CIP system would consist of solution preparation tanks and circulation pumps. The RO CIP facility would be located in a concrete containment area and covered by a canopy.

Decarbonation System and UV Feed Pumps

This system would consist of decarbonators (packed tower) and blowers, which are used to strip excess carbon dioxide coming out of the RO system, to increase the pH of product water. UV feed pumps would then pump the product water to the UV system.

UV Disinfection

In UV disinfection, specific wavelengths of electromagnetic radiation are used to inactivate microorganisms by damaging the Deoxyribonucleic Acid (DNA). The ARWTF UV system¹ would likely consist of several components, including power supply, lamps, reactor chamber(s), cleaning equipment, flow control, and instrumentation.

¹ The UV system would have production capacity of 10 MGD. This would give the facility operators the flexibility to shut off the RO system and run the entire MF flow through the UV system.

Product Water Storage Facilities

The RO permeate would be stored in an above-grade welded steel storage tank approximately 115 feet in diameter, 35 feet high, and with 2.25 million gallons of capacity. The product water tank would be supported on 14-inch precast, prestressed, reinforced concrete piles. Product water flow would be discharged into a new product water pipeline routed to the TPS, where it would blend with chlorinated tertiary effluent from SJ/SC WPCP to achieve a target TDS 500 mg/L. A control valve and flow meter would be used on the product water line to ensure the correct blending ratio of ARWTF product water to SJ/SC WPCP tertiary effluent.

Chemical Storage and Feed Facilities

The ARWTF would require chemical storage and feed facilities for operation of the facility. Each chemical system would be located in a separate reinforced concrete containment facilities with a pre-engineered canopy covering each containment area. Process chemicals would include aqua ammonia, sodium hypochlorite, sulfuric acid, sodium hydroxide, and threshold inhibitor, all of which would be stored in appropriate secondary containment.

Pipelines

As shown on Figure 2-3, major off-site pipelines would include the following:

- A 10-inch diameter, 4,900-foot long RO concentrate pipeline, which would convey RO concentrate to the Chlorine Contact Tank at the SJ/SC WPCP;
- A 36-inch diameter, 1,500-foot long influent pipeline, which would carry nitrified secondary effluent from the Nitrified Clarifiers at the SJ/SC WPCP to the ARWTF influent pump station; and
- A 10-inch diameter, 400-foot long waste pipeline, which would convey miscellaneous wastes (MF backwash waste, membrane cleaning wastes, and autostrainer waste to a sewer that discharges to the SJ/SC headworks.

Additionally, both potable water and water required for fire suppression would be obtained from an existing line located at the SBWR TPS. Due to the variation in ARWTF flows (i.e. summer vs. winter), all major pipelines would be sized based on a design velocity of 2-8 feet per second and would be built in accordance with appropriate American Water Works Association (AWWA) design criteria.

2.4 Project Construction

Construction Staging

Adequate space is available on and adjacent to the project site for material and equipment staging, storage and access, and for temporary stockpiling of spoils

and construction debris. Some equipment and materials would also likely need to be staged on SJ/SC WPCP property for the construction of off-site piping.

Construction Schedule

Construction of the proposed project would last approximately 22 months, with actual construction activities beginning in the summer of 2010. Project construction would be phased, with some activities occurring simultaneously at the project site and other activities requiring sequential implementation. The anticipated phases of construction are shown in Table 2-1. However, the construction contractor would provide a final detailed construction schedule.

Site Access and Project Workforce

As discussed above, primary access to the project site would be from Zanker Road. To access the site, construction traffic would enter and exit the site via the entrance to the SBWR TPS. Internal access to the site would be along the sludge pond access road.

Based on preliminary estimates, it is estimated that, at a maximum, the daily project workforce would consist of between 20 and 50 workers over a 12-month period. Thus, as a worst-case, the daily number of construction-related vehicle trips is estimated to be 100 daily trips (50 inbound trips in the morning and 50 outbound trips in the afternoon/evening). The approximate daily construction worker and truck trips needed by activity are shown in Table 2-1. Adequate parking for commuting vehicles would be available on and adjacent to the project site.

Table 2-1. Estimated Duration of Construction Activities and Daily Construction Traffic

Construction Activities	Duration	Daily Construction Worker Trips (Round Trip)	Daily Truck Trips (Round Trip)
Excavation	4 months	20	10
Imported Fill	4 months	20	12
Shoring	4 months	20	2
Piling	3 months	30	6
Concrete	5 months	30	6
Equipment and Pipe Delivery	12 months	40-50	6-12

Note: This information was provided by Black & Veach in November 2007. The estimates are conservative; thus, the actual amount of daily construction traffic would likely be less than is shown above.

2.5 Operation and Maintenance

The ARWTF would be operated and maintained by the District, with a small number of operators (3-4) conducting daily visits to the facility. The ARWTF would be operational 24 hours a day, 7 days a week.

As discussed above, chemicals used in the treatment process – aqua ammonia, citric acid, sodium hypochlorite, sulfuric acid, sodium hydroxide, and threshold inhibitor – would be stored onsite. Deliveries of chemicals would be infrequent, occurring approximately once each month.

2.6 Best Management Practices

Best management practices (BMPs) are practices that prevent, avoid, or minimize potentially adverse effects associated with construction or other activities. The District routinely incorporates a wide range of BMPs into project design as described in detail in its *BMP Handbook* (Santa Clara Valley Water District 2008). The proposed project would require many of the District's standard BMPs, as summarized in Table 2-2. Table 2-2 is intended to give an overview, focusing on the BMPs specifically needed to avoid potentially significant project impacts; additional measures from the District's BMP Handbook, resulting in further impact reduction, would also apply. Additional measures developed to mitigate specific impacts associated with project construction are identified in Chapters 3 and 4.

All BMPs for project construction activities will be incorporated into the construction documents (plans and specifications), so contractors employed on the proposed project will be contractually required to adhere to them.

Table 2-2. Best Management Practices for Construction Activities

Water Quality Protection
<ul style="list-style-type: none"> • Suitable erosion control, sediment control, source control, treatment control, material management, and non-stormwater management BMPs will be implemented consistent with the latest edition of the California Stormwater Quality Association "Stormwater Best Management Practices Handbook," which is available at www.cabmphandbooks.com. (Water Quality BMP 41) • Sediments will be stored and transported in a manner that minimizes water quality impacts. <ol style="list-style-type: none"> 1. Wet sediments may be stockpiled outside of a live stream or may be stockpiled within a dewatered stream so water can drain or evaporate before removal. 2. This measure applies to saturated, not damp, sediments and depends upon the availability of a stockpile site. 3. For those stockpiles located outside the channel, water draining from them will not be allowed to flow back into the creek or into local storm drains that enter the creek, unless water quality protection measures recommended by the RWQCB are implemented. 4. Trucks may be lined with an impervious material (e.g., plastic), or the tail gate blocked with dry dirt or hay bales, for example, or trucks may drain excess water by slightly tilting their loads and allowing the water to drain out. 5. Water will not drain directly into channels (outside of the work area) or onto public streets without

providing water quality control measures

6. Streets will be cleared of mud and/or dirt by street sweeping (with a vacuum-powered street sweeper), as necessary, and not by hosing down the street. (Water Quality BMP 4)
- Oily, greasy, or sediment-laden substances or other material that originate from the project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.

The project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:

1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent;
2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent;
3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project.

Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations. (Water Quality BMP 40)

- Vehicles will be washed only at the approved area in the corporation yard. No washing of vehicles will occur at job sites. (Hazards & Hazardous Materials BMP 9)
 - No fueling will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).
 1. For stationary equipment that must be fueled on-site, containment will be provided in such a manner that any accidental spill of fuel will not be able to enter the water or contaminate sediments that may come in contact with water.
 2. Any equipment that is readily moved out of the waterway will not be fueled in the waterway or immediate flood plain.
 3. All fueling done at the job site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation. (Hazards & Hazardous Materials BMP 10)
 - No equipment servicing will be done in a stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).
 1. Any equipment that can be readily moved out of the channel will not be serviced in the channel or immediate flood plain.
 2. All servicing of equipment done at the job site will provide containment to the degree that any spill will be unable to enter any channel or damage stream vegetation.
 3. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a channel or flood plain.
 4. If emergency repairs are required, containment will be provided equivalent to that done for fueling or servicing. (Hazards & Hazardous Materials BMP 11)
 - Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.
 1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.
 2. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations.
 3. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151. (Hazards & Hazardous Materials BMP 12)
 - Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water.
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1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and clean-up of accidental spills.
 2. No fueling, repair, cleaning, maintenance, or vehicle washing will be performed in a creek channel or in areas at the top of a channel bank that may flow into a creek channel. (Hazards & Hazardous Materials BMP 13)
- Spill prevention kits appropriate to the hazard will always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).
 1. Prior to entering the work site, all field personnel will know the location of spill kits on crew trucks and at other locations within District facilities.
 2. All field personnel will be advised of these locations and trained in their appropriate use. (Hazards & Hazardous Materials BMP 14)
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Construction Dust Control

- Implement Bay Area Air Quality Management District (BAAQMD) Basic Control Measures for construction emissions of PM₁₀ at all construction sites. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999):
 1. Active areas shall be watered at least twice per day unless soils are already sufficiently moist to avoid dust. The amount of water must be controlled so that runoff from the site does not occur, yet dust control is achieved.
 2. Trucks hauling soil, sand, and other loose materials shall be covered or shall maintain at least two feet of freeboard.
 3. Unpaved access roads, parking areas and staging areas at construction sites shall be paved, watered three times daily, or non-toxic soil stabilizers shall be applied to control dust generation.
 4. Paved site access roads, parking areas, and staging areas shall be swept daily (with vacuum-powered street sweepers).
 5. Paved public streets shall be swept (with vacuum-powered street sweepers) if visible soil material is carried onto adjacent paved surfaces. (Air Quality BMP 1)
 - For sites greater than four acres in size, implement Bay Area Air Quality Management District Enhanced Dust Control Measures. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999):
 1. All BAAQMD “Basic” control measures.
 2. Inactive areas (previously graded areas inactive for ten days or more) shall be sprayed with soil stabilizer or seeded.
 3. Exposed stockpiles (dirt, sand, etc.) shall be watered twice daily, enclosed, covered, or sprayed with soil stabilizers.
 4. Traffic speeds on unpaved roads shall be limited to 15 mph.
 5. Sandbags or other bank protections shall be installed to prevent silt runoff to roadways.
 6. Vegetation in disturbed areas shall be replanted as soon as horticulturally appropriate. For example, plant material may not be ready as soon as the job is done (e.g. willow cuttings have to be collected during winter dormancy). (Air Quality BMP 2)
 - Implement appropriate BAAQMD Optional Control Measures for construction emissions of PM₁₀ at all construction sites. BAAQMD Optional Control Measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors, or which for any other reason may warrant additional emissions reductions. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999):
 1. Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.
 2. Install wind breaks or plant trees/vegetation wind breaks at windward side(s) of construction areas.
 3. Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
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4. Limit the area subject to excavation, grading, and other construction activity at any one time.

Additional District control measures that may be used if applicable include:

5. Tailgates of trucks shall be sealed.
 6. Trucks shall be brushed down before leaving the site. (Air Quality BMP 3)
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Construction Noise Control

- The District will implement practices that minimize disturbances to residential neighborhoods surrounding work sites.
 1. In general, work will be conducted during normal working hours. Extending weekday hours and working weekends may be necessary to complete some projects.
 2. Internal combustion engines will be equipped with adequate mufflers.
 3. Excessive idling of vehicles will be prohibited.
 4. All construction equipment will be equipped with manufacture's standard noise control devices.
 5. The arrival and departure of trucks hauling material will be limited to the hours of construction.
 6. The use of jake brakes is prohibited in residential areas. (Noise BMP 2)
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Biological Resources Protection

- Migratory bird nesting surveys will be performed prior to any project-related activity that could pose the potential to affect migratory birds. Inactive bird nests may be removed, with the exception of raptor nests. No birds, nests with eggs, or nests with hatchlings will be disturbed. (Biological Resources BMP 8)
 - Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season, or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete. (Biological Resources BMP 10)
-

Cultural Resources Protection

- Work in areas where archaeological artifacts are found will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 30 feet of the find. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the Public Resources Code and Section 15126.4 of the California Code of Regulations. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines. (Cultural Resources BMP 2)
 - Work in areas where any burial site is found will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs. (Cultural Resources BMP 3)
-

Traffic Control

- Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction, to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. (Transportation/Traffic BMP 1)
-

Source: Santa Clara Valley Water District 2008, unless otherwise noted.

Analysis of the Proposed Action

Chapter 3

Analysis of the Proposed Action

3.1 Introduction

This chapter describes those aspects of the environment that could or would be affected by the proposed project (and proposed action). Consistent with CEQA and NEPA requirements, this chapter also evaluates the environmental consequences of the proposed project in relation to the following topics.

- Aesthetics;
- Agricultural Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use Planning;
- Mineral Resources;
- Noise;
- Population and Housing;
- Public Services;
- Recreation;
- Transportation/Traffic;
- Utilities and Service Systems;
- Socioeconomics and Environmental Justice;
- Indian Trust Assets; and
- Energy Resources.

If necessary, mitigation measures are identified to reduce environmental impacts in order to comply with CEQA. All mitigation measures identified in these documents would be incorporated into the proposed project. The CEQA Initial Study Checklist is included as Appendix A.

3.2 Aesthetics

Affected Environment

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area (Federal Highway Administration 1983). Scenic quality can be described best as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area (U.S. Bureau of Land Management 1980). Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, the number of views seen, the distance of the viewers, and the viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed. These terms and criteria are described in detail below.

Visual Character

Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanic, wildlife, recreation, and urban features. Urban features include those associated with landscape settlements and development, including roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly seasonally, even hourly, as the weather, the light, shadows, and elements that compose the viewshed change. The basic components used to describe visual character for most visual assessments are the elements of form, line, color, and texture of the landscape features (U.S. Forest Service 1995; Federal Highway Administration 1983). The appearance of the landscape is described in terms of the dominance of each of these components.

Visual Quality

Visual quality is evaluated using the well-established approach to visual analysis adopted by the Federal Highway Administration (FHWA), employing the concepts of vividness, intactness, and unity (Federal Highway Administration 1983; Jones et al. 1975), which are described below.

- Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.

- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes and in natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity. High-quality views are highly vivid and relatively intact and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Viewer Exposure and Sensitivity

The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity or concern is based on the visibility of resources in the landscape, the proximity of viewers to the visual resource, the elevation of viewers relative to the visual resource, the frequency and duration of views, the number of viewers, and the type and expectations of individuals and viewer groups.

The importance of a view is related in part to the position of the viewer to the resource; therefore, the visibility and visual dominance of landscape elements depend on their placement within the viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (Federal Highway Administration 1983). To identify the importance of views of a resource, a viewshed must be broken into distance zones of foreground, middleground, and background.

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or driving as part of their work (U.S. Forest Service 1995; Federal Highway Administration 1983). Judgments of visual quality and viewer response must be made based in a regional frame of reference (U.S. Soil Conservation Service 1978).

Visual Setting

Santa Clara County contains diverse views that include the coastal range to the west, the Diablo range to the east, scattered wetlands and the San Francisco Bay to the north, and urban areas such as the City of San Jose.

The proposed site is located adjacent to the SBWR TPS, which is near the SJ/SC WPCP, and is primarily surrounded by undeveloped agricultural land. The setting is mostly composed of flat undeveloped land and scattered trees, and the foothills of the Coast Ranges can be seen in the west. No rock outcrops or other distinctive aesthetic features are present at the site or in the vicinity.

Environmental Consequences

Criteria used for determining the significance of aesthetics impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

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

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact AES-1: Substantial Adverse Effect on Scenic Vistas (No Impact)

The development of the proposed project would not result in an impact on scenic vistas as there are no designated scenic vistas near the project site. Subsequently, there would be no impact.

Impact AES-2: Substantial Damage to Scenic Resources, Including Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway (No Impact)

The development of the proposed project would not substantially degrade scenic resources. No trees would be cut down as a result of the proposed project, and there are no historic buildings in the project vicinity. In addition, there are no scenic highways located near the project site. Therefore, there would be no impact.

Impact AES-3: Substantial Degradation of Existing Visual Character or Quality of the Project Site and Surroundings Associated with Construction of the Proposed Project (Less than Significant)

The proposed project site on Zanker Road is zoned light industrial (City of San Jose 2009a). The proposed development would be consistent with this zoning and with existing structures on the SJ/SC WPCP site, and therefore would not degrade the existing visual character of the site. The nearest residential development is located approximately 0.8 miles south of the project site, and residents would not have views of the proposed project. Los Esteros Road and Zanker Road are not highly traveled. As such, viewer sensitivity of the project area is considered low. Because the proposed project would not change the visual character or degrade the visual quality of the site, and because viewer sensitivity in the project area is considered low, this impact is considered less than significant.

Impact AES-4: Creation of a New Source of Substantial Light or Glare That Would Adversely Affect Daytime or Nighttime Public Views in the Area (Less than Significant)

The proposed project consists of building a new recycled water facility adjacent to the TPS, which is near the existing SJ/SC WPCP site. The new facilities would result in additional light and glare. However, these additions would be consistent with existing sources of light and glare at the SJ/SC WPCP. In addition, viewer sensitivity is considered low at the project site as the nearest residences are located 0.8 mile away and other views would mainly consist of fleeting views from drivers passing by. Therefore, this impact is considered less than significant.

3.3 Agricultural Resources

Affected Environment

The proposed site is currently classified as Grazing Land under the California Department of Conservation's (DOC's) FMMP (Farmland Mapping and Monitoring Program) (California Department of Conservation 2006). The site is not situated on land designated for agriculture or under current agricultural use.

Regulatory Context

With respect to the project area, three major regulations or programs pertain to the development and conversion of farmlands in California. These are the federal Farmland Protection Policy Act (FPPA), the California Land Conservation Act

(also known as the Williamson Act) (which operates at the county level), and the state Farmland Mapping and Monitoring Program. The following summarize their key aspects.

Farmland Protection Policy Act

The FPPA of 1984 requires federal agencies to consider how their activities or responsibilities that involve financing or assisting construction of improvement projects, or acquiring, managing, or disposing of federal land and facilities may affect farmland. To comply with the provisions of the FPPA, the lead federal agency must consult with the Natural Resource Conservation Service (NRCS) (formerly the Soil Conservation Service) and Farmland Conversion Impact rating form (U.S. Department of Agriculture [USDA] Form AD-1006) for each affected site or area. The federal lead agency is responsible for coordinating completion of the Farmland Conversion Impact Rating Form (Form AD-1006) with the NRCS. AD-1006 provides the basis for reporting the results of a Land Evaluation and Site Assessment (LESA) analysis that is prepared jointly by the federal lead agency and the NRCS.

Farmland Mapping and Monitoring Program

As part of its FMMP, the California DOC periodically prepares maps of Important Farmlands for most of the state's agricultural areas. Preparation of these maps follows DOC's Important Farmland Inventory (IFI) system, which relies on the following sources of information.

- NRCS soil survey maps.
- Land inventory and monitoring criteria developed by NRCS to characterize the land's suitability for agricultural production, the physical and chemical characteristics of its soil, and the actual (existing) land use.
- Land use information compiled by the DWR.
- Important Farmland maps, typically updated every 2 years.

The FMMP uses eight land use/land cover categories to map farmlands and other areas. Grazing Land, four primary categories of farmland, and three categories of other lands/land cover are used. Following are the four primary farmland mapping categories. For the purposes of this analysis, and as defined by CEQA, only three of these categories – Prime Farmland, Farmland of Statewide Importance, and Unique Farmland – are considered "Important Farmland," the conversion of which would potentially constitute a significant impact

Prime Farmland

Lands with a combination of physical and chemical features best able to sustain long-term production of agricultural crops. The land must be supported by a developed supply of irrigation water that is dependable and of adequate quality during the growing season. It must also have been used for the production of

irrigated crops at some time during the 4 years before mapping data were collected.

Farmland of Statewide Importance

Lands with agricultural land use characteristics, irrigation water supplies, and physical characteristics similar to those of Prime Farmland but with minor shortcomings, such as steeper slopes or soils that retain less moisture.

Unique Farmland

Lands with soils of lower quality used for the production of California's leading agricultural cash crops. Unique Farmlands are typically irrigated but include non-irrigated orchards or vineyards in some of the state's climatic zones.

Farmland of Local Importance

Lands of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.

California Land Conservation Act (Williamson Act)

The Williamson Act is one of the state's primary mechanisms for conserving farmland. This voluntary program is administered at the county level and offers landowners property tax incentives to maintain their lands in agriculture or other compatible uses. Under the Williamson Act, private landowners may enter into a contract with their county, limiting the use of their land to agriculture or other compatible use for a minimum period of 10 years. In return, the county assesses the land at its agricultural value rather than its fair market value. This limits property tax increases that could otherwise arise from land speculation.

Environmental Consequences

Criteria used for determining the significance of agricultural resources impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use;
- conflict with existing zoning for agricultural use or a Williamson Act contract; or
- involve other changes in the existing environment that, due to their location or nature could result in the conversion of farmland to non-agricultural use.

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact AG-1: Convert Farmland to Non-Agricultural Use, Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract, or Involve Other Changes That Could Result in Conversion of Farmland to Non-Agricultural Use (No Impact)

The proposed project would be constructed on land currently designated by the Department of Conservation on its 2008 FMMP map for Santa Clara County as Grazing Land and thus would not convert Important Farmland under the Farmland Mapping and Monitoring Program.

It also would not conflict with existing zoning for agricultural use or a Williamson Act contract, or otherwise convert farmland to a non-agricultural use. Therefore, there would be no impact.

3.4 Air Quality

Affected Environment

Air quality is determined primarily by the type and amount of contaminants emitted into the atmosphere, the size and topography of the basin, and the basin's meteorological conditions. The project area, located within the Santa Clara Valley, is part of the San Francisco Bay Area Air Basin (SFBAAB). Air quality conditions in the SFBAAB are regulated by the Bay Area Air Quality Management District (BAAQMD).

National and state air quality standards specify the upper limits of concentrations and duration in the ambient air for several criteria pollutants: ozone, carbon monoxide (CO), nitrogen dioxide, particulate matter less than or equal to 10 microns in diameter (PM10), sulfur dioxide, and lead. Table 3-1 presents the state and federal standards for a variety of pollutants. The BAAQMD also conducts monitoring for two other state standards: sulfate and visibility. If a pollutant concentration is lower than the respective state or federal standard, the area is classified as being in *attainment* for that pollutant. If a pollutant violates the standard, the area is considered a *nonattainment* area. Areas where air quality is a problem for one or more pollutants are classified as *maintenance* areas. If data is insufficient to determine whether a pollutant is violating the standard, the area is designated an *unclassified* area.

Table 3-1. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
			California	National	California	National	California	National
Ozone [*]	O ₃	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.075	137	147	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide (Lake Tahoe only)	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO ₂	Annual average	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	NA	339	NA	If exceeded	NA
Sulfur dioxide	SO ₂	Annual average	NA	0.030	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	NA	655	NA	If exceeded	NA
Hydrogen sulfide	H ₂ S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C ₂ H ₃ Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
			California	National	California	National	California	National
Inhalable particulate matter	PM ₁₀	Annual arithmetic mean	NA	NA	20	NA	NA	NA
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	PM _{2.5}	Annual arithmetic mean	NA	NA	12	15	NA	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	35	NA	If 3-year average of 98 th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO ₄	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA

Notes: All standards are based on measurements at 25°C and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
NA = not applicable.

* The U.S. Environmental Protection Agency recently replaced the 1-hour ozone standard with an 8-hour standard of 0.08 part per million. EPA issued a final rule that revoked the 1-hour standard on June 15, 2005. However, the California 1-hour ozone standard will remain in effect.

Source: California Air Resources Board 2008.

Federal Conformity Requirements

The Clean Air Act (CAA) Amendments of 1990 requires that all federally funded projects come from a plan or program that conforms to the appropriate State Implementation Plan (SIP). Federal actions are subject to either the Transportation Conformity Rule (40 CFR 51[T]), which applies to federal highway or transit projects, or the General Conformity Rule (40 CFR 51[W]), which applies to all other federal actions.

General Conformity Rule Requirements

The purpose of the General Conformity Rule is to ensure that federal actions conform to applicable SIPs so that they do not interfere with strategies employed to attain the NAAQS. The rule applies to federal actions in areas designated as nonattainment areas for any of the six criteria pollutants and in some areas designated as maintenance areas. The rule applies to all federal actions except:

- programs specifically included in a transportation plan or program that is found to conform under the federal transportation conformity rule,
- projects with associated emissions below specified *de minimis* threshold levels, and
- certain other projects that are exempt or presumed to conform.

A general conformity determination would be required if a proposed federal action's total direct and indirect emissions fail to meet any of the following two conditions:

- emissions for each affected pollutant for which the region is classified as a maintenance or nonattainment area for the national standards are below the *de minimis* levels indicated in Tables 3-2 and 3-3, and
- emissions for each affected pollutant for which the region is classified as a maintenance or nonattainment area for the national standards are regionally insignificant (total emissions are less than 10% of the area's total emissions inventory for that pollutant).

If either condition above is not met, then a general conformity determination must be performed. The determination would demonstrate that total direct and indirect emissions for each affected pollutant for which the region is classified as a maintenance or nonattainment area, under the national standards, would conform with the applicable SIP.

However, if the above two conditions are met, then the requirements for general conformity do not apply, as the proposed action is presumed to conform with the applicable SIP for each affected pollutant. As a result, no further analysis or determination would be required.

Table 3-2. Federal *de minimis* Threshold Levels for Criteria Pollutants in Nonattainment Areas

Pollutant	Emission Rate (Tons per Year)
Ozone (ROG/VOC or NO_x)	
Serious nonattainment areas	50
Severe nonattainment areas	25
Extreme nonattainment areas	10
Other ozone nonattainment areas outside an ozone transport region¹	100
Other ozone nonattainment areas inside an ozone transport region ¹	
ROG/VOC	50
NO _x	100
CO: All nonattainment areas	100
SO ₂ or NO ₂ : All nonattainment areas	100
PM ₁₀	
Moderate nonattainment areas	100
Serious nonattainment areas	70
PM _{2.5}	
Direct emissions	100
SO ₂	100
NO _x (unless determined not to be a significant precursor)	100
ROG/VOC or ammonia (if determined to be significant precursors)	100
Pb: All nonattainment areas	25

Note: *de minimis* threshold levels for conformity applicability analysis.

¹ Ozone Transport Region is comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, the Consolidated Metropolitan Statistical Area that includes the District of Columbia and northern Virginia (Section 184 of the Clean Air Act).

Bolded text indicates pollutants for which the region is in non-attainment, and a conformity determination must be made.

Source: 40 CFR 51.853.

Table 3-3. Federal *de minimis* Threshold Levels For Criteria Pollutants in Maintenance Areas

Pollutant	Emission Rate (Tons per Year)
Ozone (NO _x , SO ₂ or NO ₂)	
All maintenance areas	100
Ozone (ROG/VOC)	
Maintenance areas inside an ozone transport region ¹	50
Maintenance areas outside an ozone transport region ¹	100
CO: All maintenance areas	100
PM10: All maintenance areas	100
PM2.5	
Direct emissions	100
SO ₂	100
NO _x (unless determined not to be a significant precursor)	100
ROG/VOC or ammonia (if determined to be significant precursors)	100
Pb: All maintenance areas	25

Note: *de minimis* threshold levels for conformity applicability analysis.

¹ Ozone Transport Region is comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, the Consolidated Metropolitan Statistical Area that includes the District of Columbia and northern Virginia (Section 184 of the Clean Air Act).

Bolded text indicates pollutants for which the region is in maintenance, and a conformity determination must be made.

Source: 40 CFR 51.853.

Climate and Topography

The Santa Clara Valley has high potential to accumulate air pollutants. Stable air, high summer temperatures, and mountains surrounding the valley combine to promote ozone formation. The Santa Clara Valley has a high concentration of industrial air pollutant sources at its northern end. The Santa Clara Valley's large population also generates the highest mobile source emissions from commuter trips of any subregion in the San Francisco Bay Area (Bay Area Air Quality Management District 1999). In addition to these local sources of pollution, ozone precursors from Alameda, San Mateo, and San Francisco Counties are carried by prevailing winds to the Santa Clara Valley. Pollutants are generally channeled to the southeast. Furthermore, on summer days with low-level inversions, ozone can be recirculated by southerly winds in the late evening and early morning and by

the prevailing northwesterly winds in the afternoon. A similar recirculation pattern occurs in winter, affecting CO and PM10 levels in the air. This air movement throughout the valley significantly increases the impact of pollutants in this area (Bay Area Air Quality Management District 1999).

Ambient Air Quality

The State of California has designated the SFBAAB a serious nonattainment area for the state 1-hour ozone standard, a nonattainment area for state PM2.5 and PM10 standards, and an attainment area for the state CO standard. The U.S. Environmental Protection Agency (EPA) has designated the SFBAAB as a marginal nonattainment area for the 8-hour federal ozone standard, an unclassified/attainment area for the federal PM10 standard, and a nonattainment area for the federal PM2.5 standard. The EPA has also designated the urbanized areas of Santa Clara County (50 Federal Register 12540) as a moderate (≤ 12.7 parts per million) maintenance area for CO, while the rest of the county is designated as unclassified/attainment.

The existing air quality conditions in the proposed project area can be characterized by monitoring data collected in the region. The nearest air quality monitoring station is located at the San Jose-Jackson Street site, which is located approximately 7.5 miles from the proposed project site. Table 3-4 summarizes air quality monitoring data from the San Jose-Jackson Street monitoring station for the last 3 years that complete data is available (2006–2008). As indicated in Table 3-4, the San Jose-Jackson Street monitoring station has experienced occasional exceedances of the state 1-hour and federal 8-hour ozone standards, and several exceedances of the state PM2.5 and PM10 standards during the 3-year monitoring period for which complete data is available. There have been no violations of state or federal CO standards.

The BAAQMD generally defines a sensitive receptor as a facility or land use that houses or attract members of the population, such as children, the elderly, and people with illnesses, who are particularly susceptible to the health complications related to poor air quality. The closest sensitive receptors include a residential subdivision, which is located approximately .8 miles south of the proposed project, Jubilee Christian Center, which is located approximately 1 mile southwest of the project, and Anthony Spangler Elementary School, which is located approximately 1.4 miles west of the proposed project.

Table 3-4. Ambient Air Quality Monitoring Data Measured at the San Jose-Jackson Street Monitoring Station

Pollutant Standards	2006	2007	2008
Ozone			
Maximum 1-hour concentration (ppm)	0.118	0.083	0.118
Maximum 8-hour concentration (ppm)	0.087	0.068	0.080
Number of days standard exceeded ^a			
NAAQS 1-hour (>0.12 ppm)	0	0	0
CAAQS 1-hour (>0.09 ppm)	5	0	1
NAAQS 8-hour (>0.08 ppm)	3	0	2
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	2.92	2.71	2.48
Maximum 1-hour concentration (ppm)	4.1	3.5	3.3
Number of days standard exceeded ^a			
NAAQS 8-hour (≥ 9.0 ppm)	0	0	0
CAAQS 8-hour (≥ 9.0 ppm)	0	0	0
NAAQS 1-hour (≥ 35 ppm)	0	0	0
CAAQS 1-hour (≥ 20 ppm)	0	0	0
Particulate Matter (PM₁₀)^b			
National ^c maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	68.9	64.7	55.0
National ^c second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	57.8	60.8	40.3
State ^d maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	73.2	69.1	57.3
State ^d second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	61.7	64.5	43.5
National annual average concentration ($\mu\text{g}/\text{m}^3$)	20.2	21.2	22.6
State annual average concentration ($\mu\text{g}/\text{m}^3$) ^e	21.0	22.0	23.4
Number of days standard exceeded ^a			
NAAQS 24-hour ($>150 \mu\text{g}/\text{m}^3$) ^f	0	0	0
CAAQS 24-hour ($>50 \mu\text{g}/\text{m}^3$) ^f	11.5	18.1	6.1
Particulate Matter (PM_{2.5})			
National ^c maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	64.4	57.5	41.9
National ^c second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	46.2	51.7	39.8
State ^d maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	64.4	57.5	41.9
State ^d second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	46.2	51.7	41.5
National annual average concentration ($\mu\text{g}/\text{m}^3$)	10.8	10.7	11.5
State annual average concentration ($\mu\text{g}/\text{m}^3$) ^e	-	11.0	11.5
Number of days standard exceeded ^a			
NAAQS 24-hour ($>65 \mu\text{g}/\text{m}^3$)	7.6	9.1	5.1

Sources: California Air Resources Board 2008a; U.S. Environmental Protection Agency 2008a.

Notes: CAAQS = California ambient air quality standards.

NAAQS = national ambient air quality standards.

– = insufficient data available to determine the value.

ppm = parts per million.

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

^a An exceedance is not necessarily a violation.

^b Measurements usually are collected every 6 days.

Pollutant Standards	2006	2007	2008
^c National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.			
^d State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.			
^e State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.			
^f Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.			

Greenhouse Gases and Climate Change

The State Legislature signed Assembly Bill 32 (AB32), in 2006, which acknowledged global climate change and charged CARB with developing regulations to address global climate change. CARB is mandated to set a GHG emission limit, based on 1990 levels, to be achieved by 2020, most notably a reduction in GHG emissions by approximately 25% below “business-as-usual” predictions of year 2020 emissions to achieve this goal.

State Senate Bill 97 (SB97) of 2007 requires that the Governor’s Office of Planning and Research (OPR) draft CEQA guidelines to submit to the California Resources Agency regarding feasible mitigation of GHG emissions or the effects of GHG emissions. The California Resources Agency is required to certify and adopt these revisions to the State CEQA Guidelines by January 1, 2010. The Guidelines will apply retroactively to any incomplete environmental impact report, negative declaration, mitigated negative declaration, or other related document.

Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. It is exacerbated by greenhouse gases, which trap heat in the atmosphere (thus the “greenhouse” effect). Greenhouse gases (GHGs) include carbon dioxide, methane, and nitrous oxide, and are emitted by natural processes and human activities. The accumulation of greenhouse gases in the atmosphere regulates the earth’s temperature, and is natural and desirable, as without it the earth’s surface would be about 61 degrees cooler.

Scientific evidence suggests that emissions from human activities, such as electricity production and vehicle emissions, have elevated the concentration of these gases in the atmosphere, and are increasing the rate and magnitude of climate change to a degree that could present hazardous conditions. Potential adverse effects of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels, changes to ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The potential for climate change impacts at specific locations remains uncertain, and to assign specific impacts to the project site would be speculative. Some conclusions can be drawn about the potential in general for the project area to be subject to increased likelihood of flooding, drought, and susceptibility to the increased potential for infectious diseases as cited above. An individual proposed action, even a very large proposed action, does not in itself generate enough GHG emissions to significantly influence global climate change. Global climate change is a cumulative process. A proposed action exacerbates this world-wide impact through its incremental contribution combined with the cumulative emissions of all other sources of GHGs.

There are currently no established thresholds for measuring the significance of a proposed action's cumulative contribution to global climate change. However, individual proposed actions can contribute to greenhouse gas emission reductions by incorporating features that reduce vehicle emissions, and maximize energy-efficiency.

United States Greenhouse Gas Emissions

In 2006, total U.S. GHG emissions were 7,054.2 million metric tons (MMT) CO₂ Eq. Overall, total U.S. emissions have risen by 14.7 percent from 1990 to 2006. The primary GHG emitted by human activities in the United States was CO₂, representing approximately 84.8 percent of total GHG emissions. The largest source of CO₂, and of overall GHG emissions, was fossil fuel combustion. CH₄ emissions, which have declined from 1990 levels, resulted primarily from enteric fermentation associated with domestic livestock, decomposition of wastes in landfills, and natural gas systems. Agricultural soil management and mobile source fossil fuel combustion were the major sources of N₂O emissions. The emissions of substitutes for ozone depleting substances and emissions of HFC-23 during the production of HCFC-22 were the primary contributors to aggregate HFC emissions. Electrical transmission and distribution systems accounted for most SF₆ emissions, while PFC emissions resulted from semiconductor manufacturing and as a by-product of primary aluminum production (U.S. Environmental Protection Agency 2008b).

California Greenhouse Gas Emissions

Worldwide, California is the 12th to 16th largest emitter of CO₂ (California Energy Commission 2006), and is responsible for approximately 2% of the world's CO₂ emissions (California Energy Commission 2006).

Transportation is responsible for 41% of the state's GHG emissions, followed by the industrial sector (23%), electricity generation (20%), agriculture and forestry (8%) and other sources (8%) (California Energy Commission 2006). Emissions of carbon dioxide and nitrous oxide are byproducts of fossil fuel combustion, among other sources. Methane, a highly potent GHG, results from off-gassing

associated with agricultural practices and landfills, among other sources. Sinks¹ of carbon dioxide include uptake by vegetation and dissolution into the ocean. California GHG emissions in 2002 totaled approximately 491 MMT-CO₂ eq.

Bay Area Greenhouse Gas Emissions

BAAQMD prepared an inventory of GHG emissions in the 9-county Bay Area in November 2006. Transportation is responsible for 51% of the Bay Area's emissions, followed by the industrial/commercial sector (26%), power plants (7%), oil refining (6%) and domestic use (11%) (Bay Area Air Quality Management District 2006). Total GHG emissions in 2002 were estimated at 85.4 MMT-CO₂ eq.

Environmental Consequences

Criteria used for determining the significance of air quality impacts under CEQA are based on the State CEQA Guidelines² and professional standards and practices. Impacts were considered significant if the proposed project would:

- conflict with or obstruct implementation of the applicable air quality management plan;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS or CAAQS, including releasing emissions that exceed quantitative thresholds for ozone precursors;
- expose sensitive receptors to substantial pollutant concentrations;
- create objectionable odors affecting a substantial number of people; or
- conflict with the state goal of reducing GHG emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32 (California Global Warming Solutions Act of 2006, AB 32; HSC Division 25.5, Section 38500 et seq.), such that the project's GHG emissions would result in a substantial contribution to global climate change.

Additional air quality criteria (from BAAQMD guidelines) are evaluated (Bay Area Air Quality Management District 1999). The proposed project would result in a significant impact if it were to:

¹ A carbon dioxide sink is a resource that absorbs carbon dioxide from the atmosphere. The classic example of a sink is a forest in which vegetation absorbs carbon dioxide and produces oxygen through photosynthesis.

² Revised guidelines will be adopted by January 1, 2010 to include GHGs.

- Produce operational emissions of criteria pollutants greater than 15 tons/year of ROG; 15 tons/year of NO_x; 15 tons/year of PM₁₀; or exceed NAAQS or CAAQS for CO (9 ppm 8-hour average; 20 ppm 1-hour average), and
- Result in an increased cancer risk for a person with maximum exposure potential by 10 in 1 million or a non-cancer HI greater than one for either acute or chronic exposure.

The BAAQMD has proposed new quantitative draft thresholds of significance for construction- and operations-related emissions of criteria pollutants and GHG emissions (Bay Area Air Quality Management District, 2009a; 2009b). Although these thresholds have not yet been adopted, in anticipation of the future implementation of proposed new BAAQMD CEQA quantitative thresholds of significance, this Draft EIR provides a quantitative analysis using these draft thresholds. According to the draft BAAQMD thresholds of significance, with respect to criteria pollutants, the proposed project would result in a significant impact if it were to:

- Produce construction-related emissions of criteria pollutants as follows: more than 54 pounds (lbs)/day of ROGs or NO_x, 54 lbs/day of PM_{2.5}, or 82 lbs/day of PM₁₀.
- Produce operations-related emissions of criteria pollutants as follows: more than 54 lbs/day or 10 tons/year of ROGs or NO_x, 54 lbs/day or 10 tons/year of PM_{2.5}, or 82 lbs/day or 15 tons/year of PM₁₀.
- Result in an increased cancer risk for a person with maximum exposure potential by greater than 10 in one million or a non-cancer HI more than one for either acute or chronic exposure (same as current).
- Result in an ambient annual average increase in PM_{2.5} greater than 0.3 ug/m³.

According to the draft BAAQMD thresholds of significance (Bay Area Air Quality Management District, 2009b), with respect to GHG emissions, the proposed project would result in a significant impact if it were to:

- Produce operational emissions of GHGs more than the following mass emission threshold options of:
 - Land Use Projects—1,100 MT of CO₂e/year and/or
 - Stationary Source Projects—10,000 MT of CO₂e/year.

The project's expected emissions are also analyzed against these draft thresholds.

In addition, the federal *de minimis* thresholds identified above in Tables 3-2 and 3-3 are used to evaluate potential adverse effects under NEPA.

Impact AQ-1: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan (No Impact)

A proposed action is considered inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan. The proposed action consists of constructing and operating a recycled water facility on existing SJ/SC WPCP property. This facility would not induce population or employment growth that has not been anticipated in the air district's plan. Therefore, there would be no impact.

Impact AQ-2: Violate Any Air Quality Standard, Contribute Substantially to an Existing or Projected Air Quality Violation (Less than Significant with Mitigation)

Construction

Construction of the proposed project would result in the temporary generation of emissions of ROG, NO_x, CO, SO₂, PM₁₀, and PM_{2.5}, producing short-term impacts on ambient air quality in the area. Emissions would originate from mobile and stationary construction equipment exhaust, employee vehicle exhaust, dust from clearing the land, exposed soil eroded by wind, and ROG from architectural coatings and asphalt paving. Construction-related emissions would vary depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content. The air quality impact from construction activities would be temporary and limited to the approximately two-year duration of project construction (initial surcharge work is expected to commence in March 2010, construction activities are expected to commence in August 2010, and construction is expected to be completed by December 2011).

The current BAAQMD guidelines do not include significance thresholds for construction-related air pollutant emissions and do not require quantitative estimates of construction emissions. Instead, the guidelines require implementation of control measures to reduce PM₁₀ emissions (Bay Area Air Quality Management District 1999). PM₁₀ emitted during construction activities varies greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, and weather conditions. Nonetheless, experience has shown that there are a number of feasible control measures that can be reasonably implemented to reduce PM₁₀ emissions during construction. Implementation of District Construction Dust Control BMPs, which would require that the project contract specifications include the BAAQMD's dust control procedures, and Mitigation Measure AQ-2.1, which would require that the project contract specifically include BAAQMD-recommended exhaust emissions controls, would ensure that the project is in compliance with the current BAAQMD requirements for PM. According to the current BAAQMD guidelines, if the BMPs and Mitigation Measure AQ-2.1 were implemented (as appropriate, depending on the size of the project area), air pollutant emissions

from construction activities would be considered less than significant (Bay Area Air Quality Management District 1999).

Although the BAAQMD does not currently require the quantification of construction emissions, they have been quantified for this analysis to compare against the draft BAAQMD thresholds and to achieve a better understanding of the likely approximate level of construction-related emissions generated by proposed action conditions and to provide decision makers with this information. The quantification of construction emissions was performed using the URBEMIS 2007 (Version 9.2.4) model. URBEMIS 9.2.4 relies on ARB, EPA and air district emissions factors to estimate typical emissions (construction, area source, and vehicular) associated with land use development projects. This ARB-approved model is widely recommended and used by many California air districts for calculating emissions from a variety of projects.

Because the proposed project is still in the preliminary design phase, a detailed inventory of the equipment required to construct the proposed action is not available. Therefore, this analysis was based on the types of equipment typically used on construction projects of a similar nature and size using default equipment types from the URBEMIS model (Table 3-5).

Table 3-5. Anticipated Construction Equipment Inventory by Construction Phase

Construction Phase/Equipment	Construction Duration/Number of Equipment Pieces
Phase 1: Surcharge Work	March – July 2010
On-road haul truck	1
Phase 2: Construction	August 2010 – December 2011
Grading	August 2010 – December 2010
Grader	1
Rubber tired dozer	1
Tractors/loaders/backhoes	1
Excavator	1
Water truck	1
Concrete Paving	December 2010 – May 2011
Cement and mortar mixer	4
Paver	2
Roller	1
Tractors/loaders/backhoes	1
Building construction	August 2010 – December 2011
Forklift	2
Crane	1
Tractors/loaders/backhoes	1

Construction activities for the proposed action would result in short-term impacts on ambient air quality in the area. Temporary construction emissions would result directly from site clearing/preparation and site grading, and indirectly from construction equipment emissions and construction worker commute trips. Pollutant emissions would vary daily depending on the level of activity, the specific operations, and the prevailing weather.

It is anticipated that earth moving/site grading activities would result in the highest daily fugitive dust generation. Construction emissions were modeled using the default equipment horsepower and load factor information from URBEMIS 9.2.4, with an assumed construction period of twenty-two months, commencing in August 2010, with construction occurring five days per week over an 8-hour workday. Table 3-6 and Table 3-7 present pollutant emissions from construction activities. As previously indicated, the current BAAQMD guidelines do not have quantified thresholds of significance for the evaluation of impacts from construction activities. Instead the implementation of District Construction Dust Control BMPs and Mitigation Measure AQ-2.1 (as appropriate, depending on the size of the project area), would mitigate air pollutant emissions from construction activities to less than significant (Bay Area Air Quality Management District 1999). Consequently, implementation of District BMPs and Mitigation Measure AQ-2.1 are required to reduce construction-related emissions to a less-than-significant level under the current BAAQMD guidelines.

Table 3-6. Worst-Case Construction Emission Estimates (Average Pounds per Day)

Year of Construction	ROG	NO _x	CO	PM10	PM2.5	CO ₂
Unmitigated						
2010	7.11	63.24	41.23	13.86	5.17	8,029.4
2011	9.22	30.01	33.36	1.87	1.62	6,049.8
Mitigated						
2010	7.11	53.67	41.23	5.28	2.54	8,029.4
2011	9.22	26.22	33.36	1.30	1.09	6,049.8
<i>Draft BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>NA</i>	<i>82</i>	<i>54</i>	<i>NA</i>

Table 3-7. Worst-Case Construction Emission Estimates (Tons per Year)

Year of Construction	ROG	NO _x	CO	PM10	PM2.5	CO ₂
Unmitigated						
2010	0.38	3.51	2.43	0.71	0.27	482.5
2011	1.15	3.74	4.15	0.23	0.20	753.2
Mitigated						
2010	0.38	3.03	2.43	0.28	0.14	482.46
2011	1.15	3.26	4.15	0.16	0.14	753.20
<i>Draft BAAQMD Thresholds</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>

Unmitigated construction-related ozone precursor emissions would be below the draft new BAAQMD significance thresholds for ROGs but would exceed the thresholds for NO_x. Based on this analysis, the project's worst-case construction-related emissions of NO_x would need to be reduced by 2 percent in 2010 to meet the draft new BAAQMD threshold. Additional BAAQMD exhaust controls identified in Mitigation Measures AQ-2.2 and AQ-2.3 would reduce NO_x emissions by an estimated 13 percent, as presented in Tables 3-6 and 3-7, and are sufficient to reduce the project's construction-related emissions of NO_x to below the draft new BAAQMD thresholds. Therefore, using the draft new BAAQMD thresholds, mitigated construction-related emissions of NO_x would have less-than-significant impacts on air quality.

Fugitive dust emissions from construction activities represent a significant impact. To reduce construction dust emissions, the District routinely requires BMPs that stipulate the following (see *Best Management Practices* in Chapter 2).

- Implement BAAQMD Basic Control Measures for construction emissions of PM10 at all construction sites. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999):
 - 1) Active areas shall be watered at least twice per day unless soils are already sufficiently moist to avoid dust. The amount of water must be controlled so that runoff from the site does not occur, yet dust control is achieved.
 - 2) Trucks hauling soil, sand, and other loose materials shall be covered or shall maintain at least two feet of freeboard.
 - 3) Unpaved access roads, parking areas and staging areas at construction sites shall be paved, watered three times daily, or non-toxic soil stabilizers shall be applied to control dust generation.
 - 4) Paved site access roads, parking areas, and staging areas shall be swept daily (with vacuum-powered street sweepers).

- 5) Paved public streets shall be swept (with vacuum-powered street sweepers) if visible soil material is carried onto adjacent paved surfaces. (Air Quality BMP 1)
- For sites greater than four acres in size, implement Bay Area Air Quality Management District Enhanced Dust Control Measures. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999):
 - 1) All BAAQMD “Basic” control measures.
 - 2) Inactive areas (previously graded areas inactive for ten days or more) shall be sprayed with soil stabilizer or seeded.
 - 3) Exposed stockpiles (dirt, sand, etc.) shall be watered twice daily, enclosed, covered, or sprayed with soil stabilizers.
 - 4) Traffic speeds on unpaved roads shall be limited to 15 mph.
 - 5) Sandbags or other bank protections shall be installed to prevent silt runoff to roadways.
 - 6) Vegetation in disturbed areas shall be replanted as soon as horticulturally appropriate. For example, plant material may not be ready as soon as the job is done (e.g. willow cuttings have to be collected during winter dormancy). (Air Quality BMP 2)
 - Implement appropriate BAAQMD Optional Control Measures for construction emissions of PM10 at all construction sites. BAAQMD Optional Control Measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors, or which for any other reason may warrant additional emissions reductions. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999):
 - 1) Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.
 - 2) Install wind breaks or plant trees/vegetation wind breaks at windward side(s) of construction areas.
 - 3) Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
 - 4) Limit the area subject to excavation, grading, and other construction activity at any one time.
- Additional District control measures that may be used if applicable include:
- 1) Tailgates of trucks shall be sealed.
 - 2) Trucks shall be brushed down before leaving the site. (Air Quality BMP 3)

With implementation of these BMPs and the following mitigation measures, air pollutant emissions from construction activities would be considered less than significant.

Mitigation Measure AQ-2.1 Implement Current BAAQMD Basic Construction Measures during Construction

The District shall implement all of the BAAQMD's feasible control measures to reduce exhaust emissions of PM from construction activities presented below (as feasible and where applicable).

- Use grid power instead of diesel generators at all construction sites where it is feasible to connect to grid power.
- In contract specifications, include requirements of 13 CCR 2480 and 2485, which limit the idling of all diesel-fueled commercial vehicles (weighing over 10,000 lbs) to 5 minutes at any location. In addition, limit the use of diesel auxiliary power systems and main engines to 5 minutes when within 100 feet of homes while the driver is resting.
- Minimize idling time to 5 minutes for all onsite heavy-duty equipment when not engaged in work activities.
- Locate staging areas and equipment maintenance activities as far from sensitive receptors as possible.
- Develop a schedule of low-emissions tune-ups and perform such tune-ups on all equipment. A log of required tune-ups shall be maintained and a copy of the log submitted to the District on a monthly basis for review. In addition, all equipment shall be maintained in good working order and properly tuned in accordance with manufacturers' specifications.

Mitigation Measure AQ-2.2: Implement Draft BAAQMD Basic Construction Measures during Construction

The District shall implement the following draft BAAQMD-recommended control measures to reduce PM and exhaust emissions from construction activities. The District shall include the following basic control measures, where applicable, in contract specifications:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of

California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

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

Mitigation Measure AQ-2.3: Implement Draft BAAQMD Additional Construction Measures during Construction

The District shall implement the following draft BAAQMD-recommended control measures to reduce PM and exhaust emissions from construction activities. The District shall include the following additional control measures, where applicable, in contract specifications:

- All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
- 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.
- The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOX reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for

reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as such become available.

- Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).

Operation

Operation of the ARTWF could generate area source and transportation-related emissions. At the proposed project site, area sources include emissions from landscaping activities and periodic paint emissions from facility upkeep. Transportation emissions would occur through employee commuting and chemical delivery. The ARWTF would be operated and maintained by the District, with a small number of operators conducting daily visits to the facility. The ARWTF would be operational 24 hours a day, 7 days a week. It is estimated that there would be 3-4 full time employees commuting to the facility daily. Deliveries of chemicals would be infrequent, occurring approximately once each month.

The quantification of operational emissions was performed using the URBEMIS model, assuming 365 days of operation and a round trip distance of 30 miles for employee commute trips and chemical delivery trips. These emissions are compared against the current and draft new BAAQMD significance thresholds for operational emissions. Table 3-8 and Table 3-9 present pollutant emissions from operational activities.

Table 3-8. Operation Emission Estimates (Average Pounds per Day)

Source	ROG	NO _x	CO	PM10	PM2.5
Area Source	0.44	0.01	0.77	0.00	0.00
Employee Commute	0.03	0.09	1.52	0.01	0.01
Chemical Delivery	0.00	0.02	0.01	0.00	0.00
Total	0.47	0.12	2.29	0.01	0.01
<i>Current BAAQMD Thresholds</i>	<i>80</i>	<i>80</i>	<i>NA</i>	<i>80</i>	<i>NA</i>
<i>Draft BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>NA</i>	<i>82</i>	<i>54</i>

Table 3-9. Operation Emission Estimates (Tons per Year)

Source	ROG	NO _x	CO	PM10	PM2.5
Area Source	0.08	0.00	0.14	0.00	0.00
Employee Commute	0.01	0.02	0.28	0.00	0.00
Chemical Delivery	0.00	0.00	0.00	0.00	0.00
Total	0.09	0.02	0.42	0.00	0.00
<i>Current BAAQMD Thresholds</i>	<i>15</i>	<i>15</i>	<i>NA</i>	<i>15</i>	<i>NA</i>
<i>Draft BAAQMD Thresholds</i>	<i>10</i>	<i>10</i>	<i>NA</i>	<i>15</i>	<i>10</i>

All criteria pollutant emissions would be below the current and draft new BAAQMD significance thresholds. Therefore, operational impacts related to criteria pollutants emissions are considered less than significant, and no mitigation is required.

Impact AQ-3: Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is a Nonattainment Area (Less than Significant)

As discussed in Impact AQ-2 above, the proposed action would include control measures to reduce PM10 emissions during construction. Thus, air pollutant emissions of PM10 from construction activities are considered less than significant.

Impact AQ-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations (Less than Significant)

Construction

Construction of the proposed action would involve the use of diesel powered equipment, which could pose a diesel health risk. However, as stated above the nearest sensitive receptors include a residential subdivision approximately 0.8 miles from the proposed project area and the nearest school and church that are each over one mile from the proposed action. Construction emissions would dissipate to levels that would not cause a substantial health risk at these distances. Therefore, this impact is considered less than significant.

Operation

Water treatment facilities are generally not associated with air pollutant emissions or pollutants that might cause a localized nuisance from, for example, odors or fumes (for a discussion of hazards related to the accidental release of treatment chemicals, refer to Section 3.8, *Hazards and Hazardous Materials*). The primary function of the treatment processes is to remove or reduce levels of salts and other solids in water. Aeration in a decarbonator at the end of the process would result in minor emissions of carbon dioxide. Additionally, operation of the project would result in a nominal increase in the number of employee trips per day, resulting in a minor increase in vehicle emissions. Other proposed facilities (pipelines, pipe connections, new and relocated pump stations, and water storage tanks) would be enclosed systems with no associated pollutant emissions. As such, operation of the project would have a minimal impact on local and regional air quality. The impact would therefore be less than significant.

Impact AQ-5: Create Objectionable Odors Affecting a Substantial Number of People (No Impact)

The ARWTF is not expected to result in nuisance odor problems due to the low biological content of the nitrified influent that flows to the facility from the SJ/SC WPCP and the enclosed nature of most proposed facilities. Therefore, no impact is expected to occur.

Impact AQ-6: Generation of Pollutant Emissions in Excess of Federal *de minimis* Threshold Levels (Less than Significant)

Construction

Table 3-10 presents a summary of worst-case construction emissions associated with the proposed action. Construction would generate emissions of criteria pollutants that do not exceed Federal General Conformity *de minimis* thresholds. Consequently, construction impacts would not exceed the federal *de minimis* thresholds and no adverse effect to air quality would occur. No additional mitigation is required.

Table 3-10. Worst-Case Construction Emission Estimates (Tons per Year)

Year of Construction	ROG	NO _x	CO	PM10	PM2.5	CO ₂
Unmitigated						
2010	0.38	3.51	2.43	0.71	0.27	482.5
2011	1.15	3.74	4.15	0.23	0.20	753.2
Total	1.53	7.24	6.59	0.94	0.47	1,235.7
Mitigated						
2010	0.38	3.03	2.43	0.28	0.14	482.46
2011	1.15	3.26	4.15	0.16	0.14	753.20
Total	1.53	6.30	6.59	0.44	0.28	1,235.7
<i>de minimis</i> threshold	100	100	100	NA	100	NA
10% regional conformity <i>de minimis</i> threshold ¹	13,782	16,353	63,790	7,742	2,966	NA

¹ Based on 10% of inventory from California Air Resources Board 2009.

Operation

Table 3-11 presents a summary of worst-case operation emissions associated with the proposed action. Project operation would generate emissions of criteria pollutants that do not exceed Federal General Conformity *de minimis* thresholds. Consequently, operational impacts would not exceed the federal *de minimis* thresholds and no adverse effect to air quality would occur. No additional mitigation is required.

Table 3-11. Operation Emission Estimates (Tons per Year)

Source	ROG	NO _x	CO	PM10	PM2.5
Area Source	0.08	0.00	0.14	0.00	0.00
Employee Commute	0.01	0.02	0.28	0.00	0.00
Chemical Delivery	0.00	0.00	0.00	0.00	0.00
Total	0.09	0.02	0.42	0.00	0.00
<i>Current BAAQMD Thresholds</i>	<i>15</i>	<i>15</i>	<i>NA</i>	<i>15</i>	<i>NA</i>
<i>Draft BAAQMD Thresholds</i>	<i>10</i>	<i>10</i>	<i>NA</i>	<i>15</i>	<i>10</i>

Impact AQ-7: Generation of Significant Levels of Greenhouse Gas Emissions during Construction (Less than Significant with Mitigation)

Worst-case greenhouse gas emissions from construction activities are presented in Table 3-10, which indicates construction activities would generate emissions 1,235.7 tons of CO₂ (or 1,120.97 metric tons of CO₂) over the entire construction period. Once construction activities have ceased, so will CO₂ emissions.

ARB's proposed Early Action Measures (pursuant to the California Global Warming Solutions Act of 2006, AB 32; HSC Division 25.5, Section 38500 et seq.) include emission reduction measures for diesel trucks and diesel off-road equipment. The ARB will review and adopt Early Action Measures by January 1, 2010, and equipment used for construction of the project after 2010 could be subject to these requirements. Once such measures go into effect, the District and construction contractors would be subject to these requirements, and the District will implement these measures as required; emissions from construction activities would be reduced accordingly. Since this project's construction would occur in 2010 and after, the applicable Early Action Measures adopted in 2010 would apply to the project.

Under current and draft BAAQMD guidelines (neither of which specify a quantitative threshold for construction GHG emissions), and given the small amount of GHGs that would be emitted from this project during construction, as well as implementation of Mitigation Measure AQ-7.1 and the application of existing regulations that would also reduce GHG emissions, the project would not conflict with the state's goals under AB 32 for reducing GHG emissions to 1990 levels by 2020 relative to construction emissions, such that the project's GHG emissions would result in substantial contribution to global climate change. Therefore, this potential impact would be less than significant using both the current and draft BAAQMD guidelines.

Mitigation Measure AQ-7.1: Implement Construction Equipment GHG Reduction Measures

The District shall include the following measures, as feasible and where applicable, in construction-contract specifications. These measures, in addition to having other environmental benefits, would also reduce GHG emissions. Some of these measures are part of ARB's "Early Action Measures."

- The District will require that contractors maintain tire inflation to the manufacturer's inflation specifications
- The District will require that contractors shut down equipment when not in use for extended periods of time, and minimize idling time (i.e., 15 minute maximum).
- The District will implement a construction worker education program

Impact AQ-8: Generation of significant Levels of Greenhouse Gas Emissions during Operation (No Impact)

Operation of the proposed action would result in direct GHG emissions from area sources, employee commutes, and chemical deliveries. The consumption of electricity related to the operation of the proposed action would result in indirect GHG emissions. It is anticipated that electricity would be supplied by PG&E and that the operation of the proposed facility would result in an estimated annual energy consumption of approximately 6.3 million kWh. Based on this estimate, it is predicted that operation of the proposed action would result in the annual emission of the GHG values summarized in Table 3-12.

Water recycling has the potential to reduce the embodied energy of the District's water supply. Water recycling provides an alternative water supply source and can reduce flow through the current water supply chain, decreasing energy use (Santa Clara Valley Water District 2009; National Resources Defense Council 2004). Energy saved through water recycling reduces water-related energy demand and associated indirect GHG emissions. According to the District's 2009 energy and climate report, *From Watts to Water*, the energy intensity of the Santa Clara Valley Water Supply mix is 1,544 kWh/acre-feet (AF) of water delivered (Santa Clara Valley Water District 2009). This energy intensity value includes energy for conveyance/pumping, treatment, distribution, and wastewater treatment. The project will produce up a maximum of 10 MGD; however, for the purposes of this analysis, it was assumed that the ARWTF would consistently produce 9 MGD or approximately 10,081 AF of water per year, which requires up to 6.3 million kWh of electricity per year. Consequently, the project's treatment energy intensity is approximately 623 kWh/AF of water per year. However, this water will still need to be distributed to consumers and pass through the same normal (tertiary) wastewater treatment processes as the current water supply mix. Accounting for distribution and wastewater treatment energy (approximately 694 kWh/AF), the net energy intensity is 1,317 kWh/AF (Santa Clara Valley Water District 2009). Because this is lower than the energy intensity of the Santa Clara Valley Water Supply mix, the project will result in energy savings and GHG reductions through avoided electricity production as presented in Table 3-12.

Table 3-12. Predicted Operational Greenhouse Gas Emissions (metric tons/year)

Scenario	Electricity (kWh)	CO ₂ ¹	CH ₄ (Methane) ²	N ₂ O (Nitrous Oxide) ²	Total CO ₂ e
Project					
ARWTF Electricity ³	6,283,856	1,452	1.8	4.0	1,457
Area Source, Employee Commutes, and Chemical Delivery	N/A	32	0.0	0.0	32
Wastewater Treatment & Distribution ⁴	6,996,419	1,616	2.0	4.4	1,623
Total ⁵	13,280,275	3,100	3.9	8.4	3,112
Baseline					
Santa Clara Valley Water Supply mix ⁶	15,565,519	3,596	4.5	9.8	3,610
Net Change over Baseline	-2,285,245	-496	-0.7	-1.4	-498
<i>BAAQMD Draft 2009 Land Use Project Threshold</i>					<i>1,100</i>

Note: numbers above represent annual delivery of 10,081 AF of water per year (9 MGD).

¹ Estimated using the average PG&E emission factor from 2005-2007 (231 grams/kWh).

² CO₂ equivalent (CO₂e). Estimated using average California emission factors for 2005 (latest available).

³ Energy intensity = 623 kWh/AF.

⁴ Energy intensity = 694 kWh/AF.

⁵ Energy intensity = 1,317 kWh/AF (sum of ARWTF and wastewater treatment & distribution).

⁶ Energy intensity = 1,544 kWh/AF (sum of conveyance/pumping, treatment, distribution, and wastewater treatment).

Sources: California Climate Action Registry 2009; U.S. Environmental Protection Agency 2009; Santa Clara Valley Water District 2009; National Resources Defense Council 2004.

Table 3-12 demonstrates that the project is expected to decrease operational GHG emissions from the baseline condition. GHG estimates for wastewater treatment and distribution and the baseline scenario are based on average emission factors and energy intensities for Santa Clara Valley Water. These values may vary slightly from year to year and are associated with some inherent uncertainty, but the project will be more energy efficient on a unit-by-unit basis than the baseline scenario even with minor variations. Consequently, the project will still result in a net GHG reduction in operational emissions.

As stated earlier, neither the CARB nor the BAAQMD currently has adopted a methodology or quantitative threshold that can be applied to evaluate the significance of an individual project's contribution to GHG emissions, such as those that exist for criteria pollutants. However, because the project is expected to decrease operational GHG emissions from the baseline condition, the project will have no impact on operational GHG emissions. As the ARB's early action measures and the California Energy Commission's GHG emission performance standard for local, publicly owned electric utilities become effective, the District would implement the measures as required to further reduce GHG emissions from operation of its facilities. Furthermore, design of the ARWTF would incorporate energy efficient lighting fixtures, including T8-type fluorescent light fixtures for building interiors and low pressure sodium lamps equipped with

photocells for outdoor lighting. Such design features would further reduce GHG emissions from the project's operation.

However, in accordance with the BAAQMD draft thresholds of significance for operations-related emissions, a project could have a significant impact on air quality if operations-related emissions were to exceed 1,100 MT of CO₂e per year for land use projects. Because operation of the proposed project will only result in indirect emissions from electricity consumption, comparing project emissions to the land use threshold is appropriate. However, because the project would lower operational emissions compared to baseline levels (even if the draft thresholds are adopted prior to approval of this project), the project would still have no operational GHG emissions impact.

3.5 Biological Resources

Affected Environment

Information on existing conditions at the project site was based on the following sources.

- A search of the CNDDDB 2009 and U.S. Fish and Wildlife Service (USFWS) records for the 7.5-minute Milpitas quadrangle (U.S. Fish and Wildlife Service 2009). The results of the CNDDDB search are in Appendix B, Table B-1.
- Field surveys July 19, 2007 and October 5, 2007.
- Botanical surveys May 15, 2009 and August 12, 2009.

In Artesian Slough where the current and expected operational effluent is discharged, habitat is characterized by low velocity, brackish water. Salinities range from 2.0 to 18.1 parts per thousand (ppt), depending on tidal conditions (RWQCB 2003).

On September 1, 2009, Reclamation requested concurrence from the National Marine Fisheries Service (NMFS) that the project would not adversely affect the Central Valley steelhead. Continued coordination with NMFS will be needed to resolve ESA issues regarding steelhead. Based on discussions with NMFS concerning water quality and habitat in Alviso Slough, Reclamation concluded that a "not likely to adversely affect" determination is anticipated for the project.

Overview of Site Conditions

The proposed construction site is a vacant parcel located across the street from the SJ/SC WPCP at 700 Los Esteros Road. The area is mowed grassland with some ground squirrel activity. Ground squirrels were present (~10-20 burrows) but not enough to significantly alter the vegetation. The grass (hay) is very thick

and short due to mowing and grazing by goats. An agricultural ditch is located on the east side of the project site and flows underneath the sludge pond access road via a culvert.

The SJ/SC WPCP currently discharges 110 MGD (average dry weather effluent flow) into Artesian Slough (City of San Jose 2005b), which connects to Gray Goose Slough and ultimately Coyote Creek. Artesian Slough dead ends at Los Esteros Road and consists of channel/slough habitat, which is tidally influenced.

Annual Grassland

The project site is dominated by non-native annual grasses and other ruderal species, including: Italian thistle (*Carduus pycnocephalus*), black mustard (*Brassica nigra*), poison hemlock (*Conium maculatum*), barley (*Hordeum* sp), pepper weed (*Lepidium latifolium*), and prickly sowthistle (*Sonchus asper*). Annual grassland is an abundant natural community with a statewide distribution. This vegetation community protects the soil from erosion and provides the primary source of forage for grazing wildlife and domestic stock. Annual grasslands provide habitat for western burrowing owls (*Athene cunicularia hypugae*). Annual grasslands also support insects, amphibians, reptiles, and small birds and mammals—such as California vole (*Microtus californicus*), deer mouse (*Peromyscus maniculatus*), western harvest mouse (*Reithrodontomys megalotis*), and California ground squirrel (*Spermophilus beecheyi*)—these small mammals are often preyed on by other wildlife, including red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*B. lineatus*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and coyote (*Canis latrans*).

Riparian Areas

A seasonal riparian area is located along the eastern edge of the site and runs north-south the length of the site. There was no water in the riparian area at the time of the survey. All the trees on the site were found in or immediately adjacent to the riparian area. The dominant tree species in the riparian area was arroyo willow (*Salix lasiolepis*). Other tree species noted in the area include boxelder (*Acer negundo*), black walnut (*Juglans californica*), eucalyptus, and an ornamental pine species. The understory of the riparian area was dominated by California blackberry (*Rubus ursinus*). Riparian areas provide breeding habitat for birds such as downy woodpecker (*Picoides pubescens*), black phoebe (*Sayornis nigricans*) and Wilson's warbler (*Wilsonia pusilla*).

Wetlands and Waters of the United States

The proposed project would not involve activities in wetlands or other jurisdictional waters, so no formal wetland delineation is expected to be

necessary. Based on site surveys performed for the project, no jurisdictional wetlands or waters of the United States or State of California are present on the project site. However, jurisdictional wetlands and/or waters are present near the project site.

Wetland vegetation (cattails) was noted at the south end of the survey area where the riparian area is bisected by a road. The wetland area as delineated by the cattails is approximately 20 feet by 30 feet. A culvert crosses under the road and riparian habitat continues on the south side of the road. Wetland vegetation (cattails) was also noted on the north end of the survey area, again where the riparian area is bisected by a road. A drainage ditch is present inside the project area, paralleling the road that bisects the north end of the riparian area. Some cattails and small willow were growing in this ditch. The ditch appears to drain into the riparian area.

Special-Status Species

Plants

The only special-status plant that could occur on the site is the Congdon's tarplant (*Hemizonia parryi* spp. *congdonii*). ICF Jones & Stokes botanist conducted a plant survey for the rare Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) on August 12, 2009. Congdon's tarplant is endemic to California and listed by the California Native Plant Society as a 1B.2 species. This listing status means that the species is rare, threatened, or endangered in California and elsewhere; with a threat level of fairly threatened in California. The timing of the survey was scheduled at the height of the blooming season for Congdon's tarplant to maximize species detection (blooming season: May-October). Congdon's tarplant was not observed during the survey.

Wildlife

Table B-1 in Appendix B lists the special-status wildlife species that may be present in the project region. As part of the evaluation for the project, a reconnaissance-level survey for special-status wildlife species and their habitats was conducted in the area at and surrounding the project sites (the "project study area"). Based on these surveys, the project study area is believed to offer suitable habitat for the following special-status wildlife.

- golden eagle (*Aquila chrysaetos*).
- western burrowing owl (*Athene cunicularia hypugea*).
- northern harrier (*Circus cyaneus*).

In addition, the riparian area along the agricultural ditch may support migratory birds protected under the federal Migratory Bird Treaty Act.

Suitable foraging habitat for golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*) occurs within the study area. A golden eagle and white-tailed kite were observed in the project area on October 5, 2007.

The study area also offers suitable habitat for western burrowing owl. The California Natural Diversity Database (CNDDDB) (2009) shows 23 occurrences of burrowing owls in the vicinity of the project study area. No owls were observed during the July 19, 2007 site visit. However, it was late in the breeding season and above 80 degrees when owls are likely underground. A reconnaissance-level survey for special-status wildlife species and their habitats was conducted in the area at and surrounding the project sites (the “project study area”). Based on these surveys, the project study area is believed to support habitat for western burrowing owl. Suitable foraging habitat for golden eagle and white-tailed kite also occurs within the study area. Because ground squirrel burrows are present at the project site, there is a potential for California red-legged frog (CRLF) and/or California tiger salamander (CTS) to be present in the project area. According to CNDDDB records (2009), the closest occurrences of CRLF and CTS are in Fremont, California in Alameda County near permanent bodies of water. There is an agricultural ditch present in the project area, but it was dry during all summer surveys. No permanent water features are present at the project site. Therefore, no suitable habitat exists in the project area for CRLF and CTS. These species will not be discussed further.

Fish

As shown in Table 3-13 below, fish species that could occur in Artesian Slough where the effluent is discharged include:

Table 3-13. Possible Fish Species in Artesian Slough

Common Name	Scientific Name
Chinook salmon	<i>Oncorhynchus tshawytscha</i>
Steelhead trout	<i>Oncorhynchus mykiss</i>
White sturgeon	<i>Acipenser transmontanus</i>
Striped bass	<i>Morone saxatilis</i>
Pacific herring	<i>Clupea pallasii</i>
Northern anchovy	<i>Engraulis mordax</i>
Arrow goby	<i>Clevelandia ios</i>
Bay goby	<i>Lepidogobius lepidus</i>
Jacksmelt	<i>Atherinopsis californiensis</i>
Topsmelt	<i>Atherinops affinis</i>
Longfin smelt	<i>Spirinchus thaleichthys</i>
Pacific staghorn sculpin	<i>Leptocottus armatus armatus</i>

Prickly sculpin	<i>Cottus asper</i>
Rainwater killfish	<i>Lucania parva</i>
Plainfin midshipman	<i>Porichthus notatus</i>
Shiner perch	<i>Cymatogaster aggregata</i>
Tule perch	<i>Hysterocarpus traski</i>
Threespine stickleback	<i>Gasterosteus aculeatus</i>
White croaker	<i>Genyonemus lineatus</i>
Leopard shark	<i>Triakis semifasciata</i>
Bat ray	<i>Myliobatus californica</i>
Brown rockfish	<i>Sebastes auriculatus</i>
California halibut	<i>Paralichthys californicus</i>
Starry flounder	<i>Platichthys stellatus</i>
Longjaw mudsucker	<i>Gillichthys mirabilis</i>

Source: San Francisco Baylands Restoration 2006.

Chinook salmon and steelhead are the only listed species that could occur in Artesian Slough. Chinook salmon are listed as a federal and state species of concern. Central California coast steelhead are listed as federally threatened. Artesian Slough is a dead end slough and does not provide Chinook salmon or steelhead migratory, rearing, or spawning habitat.

Regulatory Context

Federal Regulations

Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (16 U.S. Government Code [USC] Sec. 1531 *et seq.*) protects fish and wildlife species that are listed as threatened or endangered, and their habitats. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction in all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are considered likely to become endangered in the future. The ESA is administered by the USFWS for terrestrial and freshwater species and by the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service (NMFS) for marine species and anadromous fishes.

The ESA prohibits "take" of any fish or wildlife species listed by the federal government as endangered or threatened. (*Take* is defined as harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collection, or the attempt to engage in any such conduct.) The ESA also prohibits removing, digging up, cutting, or maliciously damaging or destroying federally listed plants

on sites under federal jurisdiction. However, Section 10[a][1][B] of the ESA establishes a process through which a “nonfederal entity” (a business or individual) can apply for a permit allowing take of federally listed species under certain, restricted circumstances. To be permissible under Section 10[a][1][B], take must occur as a corollary of otherwise lawful activities, and may not be the purpose of the activities; this is referred to as incidental take. Permits authorizing incidental take are issued by the USFWS and/or NMFS, depending on the species involved. A key requirement for issuance of a permit under Section 10[a][1][B] is preparation of an HCP that fully analyzes the effects of the proposed take and describes the measures that will be taken to avoid, minimize, and compensate for it.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) (16 USC Sec. 703–712 *et seq.*) enacted the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate take of migratory birds. The MBTA is administered by USFWS. It establishes seasons and bag limits for hunted species, and renders taking, possession, import, export, transport, sale, purchase, and barter of migratory birds, their occupied nests, and their eggs illegal except where authorized under the terms of a valid federal permit. Activities for which permits may be issued include: scientific collecting; falconry and raptor propagation; “special purposes,” which include rehabilitation, education, migratory game bird propagation, and miscellaneous other activities; control of depredating birds; taxidermy; and waterfowl sale and disposal.

More than 800 species of birds are protected under the MBTA. Specific definitions of *migratory bird* are discussed in each of the international treaties; in general, however, species protected under the MBTA are those that migrate to complete different stages of their life history or to take advantage of different habitat opportunities during different seasons. Examples of migratory bird species include the yellow warbler (*Dendroica petechia*), barn swallow (*Hirundo rustica*), and Canada goose (*Branta canadensis*).

Bald and Golden Eagle Protection Act

The federal Bald and Golden Eagle Protection Act (16 USC Sec. 668 *et seq.*) makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, or their parts, products, nests, or eggs. *Take* includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbance. Exceptions may be granted by the USFWS for scientific or exhibition use, or for traditional and cultural use by Native Americans. However, no permits may be issued for import, export, or commercial activities involving eagles.

State Regulations

In addition to CEQA, the principal state laws regulating biological resources are the California Endangered Species Act (CESA), the California Native Plant Protection Act (CNPPA), and the California Fish and Game Code.

California Endangered Species Act

CESA protects wildlife and plants listed as *threatened* and *endangered* by the California Fish and Game Commission, as well as species identified as candidates for such listing. It is administered by the California Department of Fish and Game (DFG). CESA requires state agencies to conserve threatened and endangered species (Sec. 2055) and thus restricts all persons from taking listed species except under certain circumstances. CESA defines *take* as any action or attempt to “hunt, pursue, catch, capture, or kill.” Under certain circumstances, DFG may authorize limited take, except for species designated as *fully protected* (see discussion of fully protected species under *California Fish and Game Code* below). The requirements for an application for an incidental take permit under CESA are described in Section 2081 of the California Fish and Game Code and in final adopted regulations for implementing Sections 2080 and 2081.

California Native Plant Protection Act

The CNPPA of 1977 was enacted to preserve, protect, and enhance endangered and rare plants in California. It specifically prohibits the importation, take, possession, or sale of any native plant designated by the California Fish and Game Commission as rare or endangered, except under specific circumstances identified in the Act. Various activities are exempt from CNPPA, although take as a result of these activities may require other authorization from DFG under the California Fish and Game Code.

California Fish and Game Code

The California Fish and Game Code provides protection from take for a variety of species, separate from and in addition to the protection afforded under CESA. The Code defines *take* as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Species identified in the Code as *fully protected* may not be taken except for scientific research. Fully protected species are listed in various sections of the Code. For instance, fully protected birds in general are protected under Section 3511, nesting birds under Sections 3503.5 and 3513, and eggs and nests of all birds under Section 3503. Birds of prey are addressed under Section 3503.5. All other birds that occur naturally in California and are not resident game birds, migratory game birds, or fully protected birds are considered *non-game birds* and are protected under Section 3800. Section 3515 lists protected fish species and Section 5050 lists protected amphibians and reptiles. Section 4700 identifies fully protected mammals.

The California mountain lion (*Felis [Puma] concolor*) is identified as a *specially protected species* in Section 4800 of the Code. Under Sections 4800–4809, it is illegal to take, injure, possess, transport, import or sell any mountain lion or any part thereof, except under specific circumstances.

Environmental Consequences

Criteria used for determining the significance of biological resources impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- have a substantial adverse effect on wetlands through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted habitat conservation plan, natural communities conservation plan, or other approved local, regional, or state habitat conservation plan.

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact BIO-1: Substantial Adverse Effect on Any Species Identified as a Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies, or Regulations or by DFG or USFWS (Less than Significant with Mitigation)

Construction of the new water treatment facility would result in temporary disturbance and habitat disruption that could affect special-status plants and wildlife in the project area. There would also be some potential for long-term effects on special-status wildlife, if occupied habitat is lost as a result of project activities. Operational effects of the water treatment plant effluent discharge into Artesian Slough could affect water quality and fish species such as Chinook salmon and steelhead in the slough habitat. The following paragraphs provide details for each species.

Plants

The only special-status plant species that could have occurred at the project site was Congdon's tarplant. As discussed above, no tarplant was observed during the plant survey, so no impact will occur and no mitigation is necessary for Congdon's tarplant.

Wildlife

Golden Eagle, White-Tailed Kite, Other Raptor Species, and Migratory Birds (Less than Significant with Mitigation)

The golden eagle is listed as a state species of special concern and fully protected. They are also protected under the Bald and Golden Eagle Protection Act. White-tailed kites are listed as fully protected under the California Fish and Game code. Both golden eagles and white-tailed kites are known to forage in the project area. White-tailed kites may nest in riparian areas adjacent to the project area. Both species are presumably habituated to the existing level of disturbance at the site, and once the new water treatment plant is operational, disturbance levels are not expected to change significantly from current levels, so long-term disturbance impacts on these species are not expected. The project would result in some permanent loss of foraging habitat, but habitat of similar quality would continue to be available in the project vicinity, so impacts are not expected to be significant. The same would be true for other raptors and migratory birds that use the area. However, the added human presence and increased activity and noise level during construction could disturb birds at and near the project sites. If disturbance occurs during the non-nesting period, birds would be expected to relocate to other similar habitat nearby, and impacts are not expected to be significant.

Disturbance of nesting migratory birds or raptors represents a significant impact. To avoid disturbance of protected nesting birds, the District routinely requires BMPs that stipulate the following (see *Best Management Practices* in Chapter 2).

- Prior to the start of construction activities that begin during the migratory bird nesting period (between January 15 and August 31 of any year), the District will retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that could nest along the project corridor. Surveys will cover all suitable raptor and migratory bird nesting habitat that will be impacted directly or by disturbance, including habitat potentially used by ground-nesting migratory bird species.
- All migratory bird nesting surveys will be performed no more than 2 weeks (14 days) prior to any project-related activity that could pose the potential to affect migratory birds. With the exception of raptor nests, inactive bird nests may be removed. No birds, nests with eggs, or nests with hatchlings will be disturbed. In addition, nesting bird preconstruction surveys will occur prior to ground disturbance, including site preparation.

With implementation of these BMPs and the following mitigation measure, impacts on protected nesting birds would be reduced to a less than significant level.

Mitigation Measure BIO-1.1. Establish Buffer Zones for Nesting Raptors and Migratory Birds

If active nests are identified when construction activities begin, the biologist will establish no-disturbance buffer zones around the nest tree (or, for ground-nesting species, the nest itself). This buffer will be delineated with the help of the construction crew and will be made apparent through the use of flagging, fencing, or other agreed upon means that will not disturb the nesting birds. Buffer width and the establishment of buffers will be coordinated with DFG representatives. Buffers will remain in place for the duration of the nesting season, and no construction presence or activity of any type will be permitted within buffer zones. In general, the minimum buffer zone widths will be as follows: for golden eagle and white-tailed kite—300 feet; other raptors and migratory birds—250 feet. Based on discussion with DFG, buffer widths may be modified, depending on the proximity of the nest(s) and whether the nest(s) would have a direct line of sight to construction activities, existing disturbance levels at the nest(s), local topography and vegetation, the nature of proposed activities, and the species potentially affected. No construction presence or activity of any kind will be permitted within any buffer zone until the biologist determines that the young have fledged and moved out of the area and the nest is no longer active.

Western Burrowing Owl (Less than Significant with Mitigation)

Western burrowing owls are state species of special concern. Impacts on western burrowing owls would be similar to those identified above for other raptor and migratory bird species. As discussed above, construction disturbance could result in mortality to breeding individuals, nest abandonment, egg or chick mortality, and/or reproductive failure, potentially representing a significant impact. Regardless of whether owls are nesting or overwintering within the project footprint, there are nesting owls very nearby (throughout the bufferlands), and the project site is considered foraging habitat. CDFG will require mitigation for the loss of foraging habitat (see Mitigation Measure BIO-1.4). Impacts would be reduced to a less-than-significant level by implementation of the following mitigation measures.

Mitigation Measure BIO-1.2. Conduct Survey for Western Burrowing Owls and Remove Existing Refugia Prior to Breeding Season

During the non-nesting season (September 1 – January 15) within 48-hours prior to ground disturbing activities, a survey will be conducted for overwintering western burrowing owls. A determination of owl presence and burrow use will be made. All unused refugia (ground squirrel burrows) will be filled in to deter owls from using the area. One-way doors will be placed in all occupied burrows. When it has been determined that owls have vacated the burrows, they will be filled to eliminate the risk of owls moving into the project site just prior to construction activities commencing.

Mitigation Measure BIO-1.3. Conduct Preconstruction Survey for New Nest Burrows and Establish Exclusion Zones If Needed

The intent of this measure is to ensure that any new burrows dug following the completion of the preconstruction surveys required in Mitigation Measure BIO-1.2 do not create additional unmitigated opportunities for disturbance, injury, or mortality of owls in the construction area. If initial ground-disturbing activities (grubbing and clearing) occur during the nesting period, a qualified wildlife biologist will conduct a pre-construction survey for nesting western burrowing owls no more than 48 hours prior to ground disturbance in all suitable burrowing owl habitat. If the biologist identifies the presence of a nesting burrowing owl in an area that is scheduled to be disturbed by construction, a 250-foot no-activity buffer will be established and maintained around the nest while it is active. Surveys and buffer establishment will be performed by qualified wildlife biologists and will be coordinated with DFG and will be subject to DFG review and oversight.

Mitigation Measure BIO-1.4. Compensate for Loss of Burrowing Owl Habitat

If occupied burrowing owl burrows are found and owls must be relocated, the District will offset the loss of foraging and burrow habitat in the project area by acquiring and permanently protecting foraging habitat identified in the project area. The protected lands would be located adjacent to the occupied burrowing owl habitat in the project area or at another occupied site within or adjacent to the bufferlands. The location of the protected lands and the ratio of compensation will be determined in coordination with DFG. The District will also prepare a monitoring plan and provide long-term management and monitoring of the protected lands. The monitoring plan will specify success criteria, identify remedial measures, and require an annual report to be submitted DFG.

If lands are not protected near the project site, credits will be purchased from a mitigation bank in coordination with DFG. DFG will be consulted as to the location of the bank and the amount of mitigation credits that would need to be purchased to compensate for burrowing owl habitat loss.

Chinook Salmon and Steelhead (Less than Significant)

There is no aquatic habitat in the immediate construction area, so no effects on fish are expected to occur during construction activities. Chinook salmon and steelhead could stray into Artesian Slough from Coyote Creek or South San Francisco Bay during project operation. However, the likelihood that this would occur is considered low, since there is no spawning, rearing, or migratory habitat for these species in the slough. Moreover, surface water quality in Artesian Slough is not anticipated to change significantly due to the reduction of operational effluent discharges from the SJ/SC WPCP (see “Effects of Effluent Diversions to SBWR” in Section 3.9, *Hydrology and Water Quality*). It is therefore expected that fish present in the slough during project operation would not be adversely affected. Accordingly, effects on fish would be less than significant. No mitigation is required.

Impact BIO-2: Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations, or By the DFG or USFWS (No Impact)

The proposed construction footprint is on disturbed grassland. Some riparian trees are present near the proposed project site, but they will not be disturbed or removed by project construction or operation. The effluent from the new water treatment plant will be discharged into Artesian Slough. Artesian Slough is currently lined with tules and no sensitive natural community is present in the slough. No sensitive habitat will be disturbed. No mitigation is required.

Impact BIO-3: Substantial Adverse Effect on Federally Protected Wetlands As Defined By Section 404 of the Clean Water Act through Direct Removal, Filling, Hydrological Interruption, or Other Means (No Impact)

The proposed project site is located on disturbed grassland. Some wetland habitat is present near the project site, but will not be disturbed by construction or operations. No mitigation is required.

Impact BIO-4: Interfere Substantially with the Movement of Any Native Resident or Migratory Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites (No Impact)

The project would not affect the riparian corridor east of the proposed site nor interfere with wildlife dispersal along the corridor. However, as described in Impact BIO-1, project construction could disturb nesting migratory birds and/or burrowing owls. To avoid disturbance of protected nesting birds, the District's BMPs will be implemented (see *Best Management Practices* in Chapter 2) in combination with Mitigation Measures 3.1 through 3.4 to reduce impacts on these species to a less-than-significant level.

Mitigation Measure BIO-4.1. Establish Buffer Zones for Nesting Raptors and Migratory Birds

Same as Mitigation Measure BIO-1.1, described above.

Mitigation Measure BIO-4.2. Conduct Survey for Western Burrowing Owls and Remove Existing Refugia Prior to Breeding Season

Same as Mitigation Measure BIO-1.2, described above.

Mitigation Measure BIO-4.3. Conduct Preconstruction Survey for New Nest Burrows and Establish Exclusion Zones If Needed

Same as Mitigation Measure BIO-1.3, described above.

Mitigation Measure BIO-4.4. Compensate for Loss of Burrowing Owl Habitat

Same as Mitigation Measure BIO-1.4, described above.

Impact BIO-4: Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such As a Tree Preservation Policy or Ordinance (No Impact)

No trees are slated for removal, so no impact is expected, and no mitigation is required. No other potential conflict with local policies or ordinances for biological resources protection has been identified. No mitigation is required.

Impact BIO-5: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan (No Impact)

Currently, no habitat conservation plan (HCP) or natural community conservation plan (NCCP) exists for the project area. Santa Clara County, the Cities of San Jose, Gilroy and Morgan Hill, the Santa Clara VTA, the SCVWD, the DFG, the USFWS, and the NMFS have jointly initiated the process to prepare and manage a Santa Clara County HCP/NCCP, but this HCP/NCCP is only in the preliminary planning stages. No other HCPs, NCCPs, or other approved local, regional, or state HCPs are applicable to the project area. Therefore, there would be no impact.

3.6 Cultural Resources

Affected Environment

This section describes those aspects of cultural resources that could or would be affected by the proposed project. Consistent with CEQA and NEPA requirements, this section also evaluates the environmental consequences of the project in relation to cultural resources.

Reclamation has concluded that the proposed project will have no effect on historic properties. Reclamation will consult with the California State Historic Preservation Officer (SHPO) seeking their concurrence on the finding of no effect on historic properties. Following concurrence from the SHPO on the finding of no effect on historic properties, Reclamation will have completed the Section 106 process. Reclamation will complete the Section 106 process as outlined in the regulations at 36 CFR Part 800 prior to implementation of the project.

Data Sources

Efforts to identify cultural resources in the project area consisted of conducting a literature review and records search; consultation with the Native American Heritage Commission (NAHC) and interested Native American parties; a field survey (conducted in June 2009), and a mechanical trenching program (conducted in November 2009).

Research and Consultation

The literature search was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS). Consultation with the Native American Heritage Commission (NAHC) resulted in the contacting of nine individuals identified by the NAHC as persons with knowledge or interest of the area. An Extended Phase I (XPI) study for the project was completed in November 2009. XPI studies are conducted in compliance with National Historic Preservation Act (NHPA) requirements to determine the presence or absence of subsurface cultural deposits within the limits of construction, also known as the area of potential effect (APE).

Several cultural resource studies (surveys) have been conducted in the area, including at this proposed project location. One archaeological site (CA-SCL-528) is recorded directly adjacent to the current APE. This archaeological site was the subject of subsurface mechanical testing (backhoe) to assess the boundaries of the site (Wiberg 1983). Trench logs and maps indicate that human bone was recovered throughout the area, and one semi-intact burial was also recovered. No surface indicators of archaeological deposits were recorded at the site in any of the previous studies.

Field Investigations

A site visit and field survey of the project area was conducted on June 2, 2009 by ICF Jones & Stokes archaeologists and an architectural historian. As part of the field process for archaeology, all visible ground areas were inspected for potential cultural resources such as topographic disturbances; soil discoloration (such as to indicate a burn area or midden deposit); charcoal, modified bone, stone, historic-era artifacts and features such as archaeological stone or adobe walls; glass, ceramic, or metal fragments; and exotic materials. The majority of the project field had poor ground visibility due to thick and overgrown vegetation; therefore, most of the visible ground surface consisted of a dirt access road running along the borders of the property. No cultural resources were observed during the archaeological field survey.

Additionally, ICF Jones & Stokes completed archaeological test excavations in portions of the project's APE in accordance with a Reclamation-approved XPI Work Plan during November 2009. In total, eight trenches were excavated within and immediately adjacent to the project APE to determine the presence or

absence of, and potential for, buried archaeological sites. Three trenches were excavated immediately outside of the APE; five trenches were excavated within the APE. Soils in two of the trenches located outside of the APE exhibited indications of very sparse cultural material—three small fragments of shell and occasional flecks of carbon. No bone, lithics, or fire-affected rocks were observed at any time, nor was there any indication of midden soil.

As part of the field process for architectural history, the site was inspected for buildings, structures, and linear features 50 years old or older. No architectural resources meeting the criteria for listing in the California Register of Historical Resources (CRHR) or the National Registry of Historic Places (NRHP) were found during the field survey.

Prehistoric Background

The Santa Clara Valley experienced intense human occupation long before European explorers arrived in the late eighteenth century. Aside from limited ethnographic information and the discovery of a few archaeological sites at the southern end of San Francisco Bay, little was known of the prehistory of the Santa Clara Valley until the early twentieth century.

Because of rapid population growth and the requirements of environmental legislation since 1972, numerous archaeological sites have been discovered in the Santa Clara Valley. Research into these sites has led to a much greater understanding of the prehistory of the region. Between 1912 and 1960, researchers from the University of California Archaeological Survey and University of California Museum of Anthropology recorded 43 sites in the Santa Clara Valley. Archaeologists L. Loud and N. C. Nelson conducted excavations at SCI-1, a large prehistoric shell mound located on the shores of San Francisco Bay (Allen et al. 1999).

More recently, obsidian hydration and radiocarbon dating methods have been instrumental in establishing dates of occupation for many of the sites in the Santa Clara Valley. Information on human occupation of the region prior to 5000 B.P. is almost nonexistent largely because of the depositional environment and dramatic environmental changes that took place before this time.

Archaeological investigations in the project area and surrounding region have shown that the Bay Area was inhabited by mobile hunter-gatherers. Archaeologists D. A. Fredrickson and J. A. Bennyhoff developed a taxonomic sequence that defined three basic cultural patterns throughout the San Francisco Bay Area and the interior Sacramento River–San Joaquin River Delta. Most of the archaeological materials found in Santa Clara Valley date to the period between 2500 B.C. and contact (Moratto 1984).

Ethnographic Background

At the time of European contact, the Santa Clara County region was occupied by a group of Native Americans whom ethnographers refer to as the Ohlone or Costanoan. The Ohlone are a linguistically defined group composed of several tribelets speaking eight different but related languages. The territory of the Ohlone extended along the coast from the Golden Gate in the north to just beyond Carmel in the south and as much as 60 miles inland. This territory encompasses a lengthy coastline and several inland valleys (Levy 1978).

The Ohlone were hunter-gatherers and relied heavily on acorns and seafood. They also exploited a wide range of other foods, including various seeds, buckeye, berries, roots, land and sea mammals, waterfowl, reptiles, and insects. The Ohlone used tule balsas for watercraft, bow and arrow, cordage, bone tools, and twined basketry to procure and process their foodstuffs (Levy 1978).

Seven Spanish missions were founded in Ohlone territory between 1777 and 1797. While living in the mission system, the Ohlone mixed with other groups, including the Esselen, Yokuts, Miwok, and Patwin. Mission life was devastating to the Ohlone population. It has been estimated that in 1777, when the first mission was established in Ohlone territory, the Native American population numbered around 10,000. This population rapidly declined to less than 2,000 by 1832 as a result of introduced disease, harsh living conditions, and reduced birth rates. After the secularization of the missions in 1834, Native Americans gradually left the missions. Many went to work as wage laborers on the ranchos, in the mines, and in domestic positions. There was a partial return to aboriginal religious practices and subsistence strategies, but for the most part the Ohlone culture was greatly diminished after secularization (Levy 1978). Descendants of the Ohlone still live around Santa Clara County, and many are active in maintaining their traditions and advocating Native American causes.

Historical Background

Spanish Colonization

Beginning in the sixteenth century, the Spanish government sent land and sea expeditions to California to explore the region for suitable harbors to provide secure ports of trade and bases for the colonization of the region. Don Gaspar de Portola led the first Spanish expedition into Alta California in 1769. In that year, he found both Monterey and San Francisco Bays and crossed through Santa Clara Valley. Father Juan Crespi, whose objective was to assess the area's suitability for establishing a Franciscan mission, accompanied Portola. The area's rich soil and large Native American population provided optimum conditions for this purpose.

The mission was the central economic institution of the colonial system. The mission fathers were charged with the conversion of native peoples to

Christianity and the creation of self-sufficient communities. The presidio provided military support for the missions, and soldiers captured and returned escaped neophytes. Despite a high death rate among the native population, the combination of mission fathers and military worked to make the missions productive institutions for many years.

The third institution in the Spanish colonization effort of Alta California, besides the mission and the presidio, was the pueblo. Pueblos were civil settlements that supplied agricultural products and provided an example of civilized life for the native population. Established along the Guadalupe River in 1877, Pueblo San José de Guadalupe consisted of 66 settlers and retired soldiers. Commander José Joaquín Moraga established the pueblo under command of the California Governor Felipe de Neve.

Mexican Period

In 1821, Mexico won independence from Spain and California became a territory of the Mexican Republic. One of the first acts of the new Mexican government was to secularize the missions and redistribute the mission holdings. Although secularization was intended to distribute the mission lands to the settlers and the native population, a wealthy class of landholders, known as *rancheros*, claimed the bulk of the former mission lands, or *ranchos*. Native Americans either returned to their native villages or worked as wage laborers on the *ranchos*. The *ranchero* economy was rooted in native labor and produced tallow and hides for trade to the eastern United States and England.

American Period

The latter half of the nineteenth century was a dynamic period in the history of the Santa Clara Valley; the region saw great change in a short amount of time. Americans, who flooded into California in the latter half of the nineteenth century, cast a covetous eye on the vast land grants of the Spanish and Mexican inhabitants of California, known as *Californios*. In 1851, Congress created the Land Commission to decide the legality of the Mexican land grants. The findings of the Land Commission dealt a heavy blow to the *Californios*. Most land grants were judged invalid, and the land was subject to sale. *Californios* lost much of their land, either from Land Commission decisions or as payment to lawyers to defend their claims in court. The opening of large tracts of land resulted in the transformation of the landscape of California from cattle ranches to farms, which supplied the increasing demand for food. The Bay Area soon became one of the most densely populated areas in California (Shoup 1997).

By the 1890s, fruit farming was the dominant agricultural activity in the region, and transportation was an essential element in the development of fruit farming. Santa Clara Valley farms were instrumental in the regional distribution of agricultural products. The late nineteenth century also saw an accelerated development of heavy industry throughout the United States, California, and the

Santa Clara Valley. In particular, the rise of mining and milling technology added to the rapid transfer to an industrialized economy. It is likely that there are remnants of centuries of human use and occupation above and below the ground surface.

Environmental Consequences

Criteria used for determining the significance of cultural resources impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- disturb any human remains, including those interred outside of formal cemeteries.

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact CR-1: Substantial Adverse Change in the Significance of A Historical Resource as Defined in Section 15064.5 (No Impact)

No architectural resources meeting the criteria for listing in the CRHR or the NRHP are present on the project site. Therefore, there would be no impact.

Impact CR-2: Substantial Adverse Change in the Significance of an Archaeological Resource Pursuant to Section 15064.5 (Less than Significant with Mitigation)

Although one archaeological resource, CA-SCL-528, was recorded adjacent to the project site, very sparse cultural materials were found to be present in site soils during ICF Jones & Stokes' subsurface field investigation. No other archaeological resources are recorded within the project area nor were any observed during initial surveys. It is therefore not anticipated that the project would cause a substantial adverse change in the significance of NRHP or CRHR eligible resources. However, the potential exists that buried archaeological resources (which may meet the definition of historic resource or unique archaeological resource) are present in the project area. Although unanticipated, there also is always the possibility that Native American remains may be unearthed.

Damage to or destruction of such resources would be a significant impact. To avoid significant impacts, the District will retain a qualified/registered archaeological monitor during construction. The monitoring process will be carried out in combination with the District's standard BMPs, which stipulate the following (see *Best Management Practices* in Chapter 2 for more detail).

- Work in areas where archaeological artifacts are found will be restricted or stopped until proper protocols are met, following guidelines in accordance with Section 21083.2 of the Public Resources Code (PRC) and Section 15126.4 of the California Code of Regulations (CCR). A Consulting Archaeologist will visit the discovery site for identification and evaluation. The archaeologist will determine if the artifact is significant or not, and will detail avoidance procedures as necessary. If the artifact cannot be avoided, the archaeologist will develop an Action Plan and, if required, a Data Recovery Plan.
- Work in areas where any burials site is found will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified. Only he or she, or the California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs, will authorize further excavation or disturbance to the site.

With implementation of these BMPs and the following mitigation measure, impacts on buried archaeological resources would be reduced to a less than significant level.

Mitigation Measure CR-2.1. Monitor Subsurface Earth Disturbances during Construction

A qualified/registered archaeological monitor will be onsite periodically to perform inspections of subsurface earth disturbance during construction. The frequency of archaeological monitoring during construction will be at the discretion of the Consulting Archaeologist and will depend on the location of work. The archaeological monitor will have the authority to temporarily halt or redirect earth disturbance work in the vicinity of cultural resources exposed during construction, so the find can be evaluated by the Consulting Archaeologist and appropriately mitigated in accordance with District's standard BMPs for cultural resources protection, as described in Chapter 2, *Best Management Practices*.

Impact CR-3: Disturb Human Remains (Less than Significant with Mitigation)

As discussed above, human bone and one semi-intact burial was recovered at an archaeological site located adjacent to the project area; thus, the potential exists that previously unmarked and unknown burials may be unearthed during excavation and ground disturbing activities. However, potential impacts would be less than significant with implementation of the BMPs summarized in Chapter

2, *Best Management Practices*, in combination with following mitigation measure.

Mitigation Measure CR-3.1. Monitor Subsurface Earth Disturbances during Construction

Same as Mitigation Measure CR-2.1, described above.

3.7 Geology and Soil

Affected Environment

Data Sources

Information about the geologic conditions in the project area is based in part on the site-specific geotechnical investigation report prepared by URS (2009). The investigation evaluated general subsurface conditions and seismicity, engineering properties related to soil conditions, and provided preliminary geotechnical recommendations for the project. The investigation included two geotechnical borings and three cone penetrometer tests (CPTs) that were used to characterize and evaluate the site soils. The sampling depths of the borings and CPTs extended to approximately 100 feet below ground surface (bgs). No bedrock was encountered during the investigation.

Additional sources of information used in the preparation of this section included various maps and reports of the USGS, California Geological Survey (CGS), and Association of Bay Area Governments (ABAG). The Alviso Master Plan EIR was also consulted to determine the historic inland limits of Bay Mud near the project area. Specific reference information is provided in the text.

Regional Geology

The project site is located at the northern end of a structural depression that constitutes the Santa Clara Valley. The Santa Cruz Mountains are located to the west of the valley, and the Diablo Range to the east. Geologic materials in the valley may be classified as older consolidated rock exposed in the surrounding mountains and younger unconsolidated fill sediments in the valley depression. The depression is filled with thick sequences of Plio-Pleistocene and Holocene age, unconsolidated alluvial (water-borne) fill. The alluvial fill ranges up to 1,500 feet thick in some places and lies over Jurassic–Cretaceous to Tertiary age bedrock of the Franciscan Formation. The fill material is composed of sand, gravel, silt, and clay that washed into the Santa Clara Valley from the bordering mountains. Deposition has historically been influenced by sedimentation rates and fluctuations in sea level due to glaciations. However, alluvial deposition in the valley still occurs during flooding events. The project site is located in the lower portion of the alluvial plain near the bay margin, where surface materials are primarily composed of Holocene finegrained alluvial fan deposits (Qhff)

(Knudsen et. al. 2000). Discontinuous sloughs oriented perpendicular to the bay margin are typical of this zone and are interpreted to be segments of abandoned creek channels whose upper reaches are filled by recent fluvial sediment (URS 2009).

Geologic Hazards

The project site is located in proximity to several “active” faults, including the San Andreas, Calaveras, and Hayward faults (Hart and Bryant 1997). Under the Alquist-Priolo Earthquake Fault Zoning Act (PRC, Section 2621 et seq.), faults are zoned, and construction along or across them is strictly regulated if they are “sufficiently active.” A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the Act as referring to approximately the last 11,000 years). Other known faults in the area include the Silver Creek, Sargent, and Monte Vista-Shannon fault. Each of these faults is capable of generating earthquake-induced ground shaking at the project site. No known faults cross the project site; therefore, there is no hazard of surface rupture at the project site.

The project site is located within an area subject to seismic shaking. The Hayward fault is located approximately 5.5 miles to the southeast and is estimated to be capable of producing a maximum earthquake of magnitude 7.1. The San Andreas fault is located approximately 14 miles to the southwest and is estimated to be capable of producing an earthquake of magnitude 7.9. The Calaveras fault is located approximately 8 miles to the east and is capable of producing an earthquake of magnitude 6.2. The Shannon-Monte Vista fault lies approximately 11.5 miles to the southwest and is capable of producing an earthquake of magnitude 6.8 (International Conference of Building Officials 1997).

The site is within the State of California Seismic Hazard Zone for liquefaction (California Geological Survey 2004). The ABAG has assigned the area a moderate liquefaction hazard level (Association of Bay Area Governments 2001). Liquefaction leads to a sudden loss of soil cohesion and soil collapse, magnifying the effects of ground shaking and increasing the potential for structural damage to buildings.

Because the site has no natural topographical relief and is situated in the center of a broad valley, it is not within the State of California Seismic Hazard Zone for earthquake-induced landslides (California Geological Survey 2004). The existing risk of slope failure, including seismically induced landslides, is therefore low.

Soils

The native soils below the site consist primarily of alluvial and fluvial deposits of sandy and silty clay, which are potentially expansive. Bay Mud, which consists of unconsolidated, locally organic, plastic clay and silty clay, may also be present

on the site; however, the project site is outside of the historical inland limits of Bay Mud, as shown in Figure 14 of the Alviso Master Plan EIR (City of San Jose 1998). Expansive soils are those that contain a substantial proportion of clay minerals that swell under wet conditions and shrink under dry conditions. Expansion and contraction as a result of wetting and drying has the potential to damage improperly designed or constructed facilities, including foundations, freestanding structures, pavement, and concrete slabs.

Environmental Consequences

Criteria used for determining the significance of geology and soils impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would result in:

- Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, as a result of:
 - rupture of a known earthquake fault as delineated by the State Geologist on the most recent Alquist-Priolo fault zoning maps or based on other substantial evidence;
 - strong seismic ground shaking or seismically induced ground failure, including liquefaction; or
 - landslides.
- Substantial soil erosion or loss of topsoil;
- Construction of structures or facilities on a geologic unit or soil that is unstable or that would become unstable as a result of construction;
- Construction of structures or facilities on expansive soils, creating major risks to life and/or risk of property damage; or
- Construction on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

In this document, these criteria are also being used to assess potential impacts under NEPA.

In response to a recognized need for standard guidance, the Society of Vertebrate Paleontology (SVP) published a set of *Standard Guidelines* (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995) that are now widely followed. The SVP guidelines identify two key phases in the process for protecting paleontological resources from project impacts, as follows.

1. Assess the likelihood that the project's area of potential effect contains significant nonrenewable paleontological resources that could be directly or indirectly impacted, damaged, or destroyed as a result of the project.
2. Formulate and implement measures to mitigate potential adverse impacts.

An important strength of the SVP's approach to assessing potential impacts on paleontological resources is that the SVP guidelines provide some standardization in evaluating a project area's paleontological sensitivity. Table 3-14 defines the SVP's sensitivity categories for paleontological resources and summarizes SVP's recommended mitigation treatments to avoid adverse impacts in each sensitivity category.

Table 3-14. Society of Vertebrate Paleontology's Recommended Treatment for Paleontological Resources, by Sensitivity Category

Sensitivity Category	Definition	Recommended Treatment
High potential (High sensitivity)	Areas underlain by geologic units from which vertebrate or significant invertebrate fossils or suites of plant fossils have been recovered.	<ul style="list-style-type: none"> ▪ Preliminary survey and surface salvage before construction begins. ▪ Monitoring and salvage during construction. ▪ Specimen preparation; identification, cataloging, curation, and storage of materials recovered. ▪ Preparation of final report describing finds and discussing their significance. ▪ All work should be supervised by a professional paleontologist who maintains the necessary collecting permits and repository agreements.
Undetermined potential (Undetermined sensitivity)	Areas underlain by geologic units for which little information is available.	<ul style="list-style-type: none"> ▪ Preliminary field surveys by a qualified vertebrate paleontologist to assess project area's sensitivity ▪ Design and implementation of mitigation if needed, based on results of field survey
Low potential (Low sensitivity)	Areas underlain by geologic units that are not known to have produced a substantial body of significant paleontologic material.	Protection and salvage are generally not required. However, a qualified paleontologist should be contacted if fossils are discovered during construction, in order to salvage finds and assess the need for further mitigation.

Source: Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995.

SVP's guidelines also provide a working definition of *significance* as applied to paleontological resources. According to SVP, significant paleontological resources are those that fulfill one or more of the following criteria (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995).

- It provides important information shedding light on evolutionary trends and/or helping to relate living organisms to extinct organisms.

- It provides important information regarding the development of biological communities.
- It demonstrates unusual circumstances in the history of life.
- It represents a rare taxon or a rare or unique occurrence; is in short supply and in danger of being destroyed or depleted.
- It has a special and particular quality, such as being the oldest of its type or the best available example of its type.
- It provides important information used to correlate strata for which it may be difficult to obtain other types of age dates.

Based on the above standards developed by SVP (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995) state's CEQA Guidelines, the proposed project would result in a significant impact on paleontological resources if it would result in substantial damage to or destruction of significant paleontological resources, as defined by SVP's Conformable Impact Mitigation Guidelines Committee (1995).

Impact GEO-1: Substantial Adverse Effects Including the Risk of Loss, Injury, or Death Involving Rupture of a Known Earthquake Fault (Less than Significant)

There are no active faults or potentially active faults located in the project area. Accordingly, the risk of surface fault rupture at the site is considered low, and the potential for impacts related to surface fault rupture is evaluated as less than significant. No mitigation is required.

Impact GEO-2: Substantial Adverse Effects Including the Risk of Loss, Injury, or Death Involving Strong Seismic Groundshaking or Seismic-Related Ground Failure, Including Liquefaction (Less than Significant)

The project site is likely to experience strong groundshaking during the lifespan of the project, and the potential for liquefaction at the site is moderate (Association of Bay Area Governments 2001). However, the facility would be designed and constructed to meet or exceed relevant standards of the current Universal Building Code (UBC) and California Building Code (CBC), and any additional recommendations identified in the site-specific geotechnical study prepared during project design (see Be Located on Unstable Geologic Units or Soil below). Although there would be some residual risk, as in any seismically active area, impacts are considered less than significant. No mitigation is required.

Impact GEO-3: Substantial Adverse Effects Including the Risk of Loss, Injury, or Death Involving Landslides (Less than Significant)

The proposed project would be constructed within a relatively flat area where no active landslides exist and the potential for landslides is low. However, creation of cut slopes and fill embankments during project construction could lead to a risk of localized slope failure if the slopes are improperly designed or implemented. In order to reduce hazards related to slope instability, all earthwork would conform with applicable codes and design standards, and any additional recommendations identified in the site-specific geotechnical study prepared for project design (see *Be Located on Unstable Geologic Units or Soil* below). Consequently, the potential for safety risks related to instability of cut and/or fill slopes during construction is expected to be less than significant. No mitigation is required.

Impact GEO-4: Substantial Soil Erosion or the Loss of Topsoil (Less than Significant)

The truck activity and other earthwork that would be conducted during the project could result in ground disturbance that would increase the hazard of erosion, and could temporarily increase erosion and sedimentation rates above pre-project levels. Accelerated erosion and sedimentation resulting from the project could result in the loss of soil and adversely affect water quality in nearby surface waters (Coyote Creek). This potential impact is considered significant, but implementation of the BMPs described in the “Best Management Practices” section in Chapter 2 would minimize potential erosion impacts. Therefore, this impact is considered less than significant.

Impact GEO-5: Be Located on a Geologic Unit or Soil That Is Unstable or That Would Become Unstable As A Result of the Project (Less than Significant)

Based on site conditions, the project area is at potential risk for liquefaction and other types of seismically induced ground failure. Depending on the degree of damage incurred, impacts could be significant. However, as part of the City’s grading permit process, the project proponent is required to submit a site-specific soils engineering report, prepared by appropriately qualified state-licensed geotechnical personnel, to the City. This report will include data regarding the nature, distribution, and strength of existing soils; conclusions and recommendations for grading procedures; design criteria for corrective measures, when necessary; and opinions about the adequacy of sites to be developed. Specific measures to reduce seismic hazards, expansive soils, and liquefaction hazards to a less-than-significant level will be included in the report and those measures will be implemented as part of the site development discussed above. In addition, the treatment facility would be designed and constructed to meet or

exceed relevant design standards and earthwork requirements of the current UBC and CBC. Therefore, this impact, and impacts related to other forms of seismically induced ground failure such as lurch cracking, settlement, etc., are expected to be less than significant. No mitigation is required.

Impact GEO-6: Be Located on Expansive Soil (Less than Significant)

The clay-rich soils that occur within the facility footprint are potentially expansive. However, the proposed project would be built in accordance with the most recent UBC/CBC standards and any relevant recommendations of the site-specific geotechnical investigation, which is expected to reduce any potential impacts to a less-than-significant level. No mitigation is required.

Impact GEO -7: Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems (No Impact)

The project would not involve onsite wastewater disposal.

Impact GEO-8: Potential for Damage to Paleontological Resources (No Impact)

As described above, the site is underlain by alluvial fan deposits of Holocene age. Geologic units of Holocene age are generally not sensitive for paleontological resources because biological remains younger than 10,000 years are not considered fossils. Accordingly, no vertebrate, invertebrate, or plant remains that fulfill the SVP's definition of significant paleontological resources are likely to be unearthed at the site during project construction. As such, no impact is anticipated to occur.

3.8 Hazards And Hazardous Materials

Affected Environment

A government records search revealed that no portion of the project site is listed on the Cortese List, a compilation of information from various sources listing potential and confirmed hazardous waste and hazardous materials sites in California.³

³ Government Code section 65962.5 requires the California Environmental Protection Agency to develop, at least annually, an updated Cortese List. The Cortese List is a planning resource used by the State, local agencies, and

The nearest public school to the project site is located approximately 1.3 miles to the east. The San Jose International Airport is located approximately 3.6 miles south of the project site. There are no wildlands or other areas potentially subject to wildfires in the project vicinity.

Environmental Consequences

Criteria used for determining the significance of hazardous materials impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to government code §65962.5 and, as a result, create a significant hazard to the public or the environment;
- impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

In this document, these criteria are also being used to assess potential impacts under NEPA.

developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. Agencies required to provide updated hazardous material release information for the Cortese List include the Department of Toxic Substances Control, State Water Resources Control Board, and the California Integrated Waste Management Board.

Impact HAZ-1: Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials, or through Reasonably Foreseeable Upset and Accident Conditions (Less than Significant)

Construction

Project construction is not expected to create a hazard to the public through the routine use of hazardous materials. Hazardous materials present at the project sites would likely include substances such as fuels and oils in construction vehicles and/or equipment. Contractors employed on the proposed project would be contractually required to transport, store, and handle construction-related hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the U.S. Department of Transportation, Santa Clara County Department of Environmental Health, and the RWQCB. In addition, the District will require the general contractor(s) selected for project implementation to adhere to procedures to ensure that water quality is protected during construction, specified in project SWPPP provisions (see *Best Management Practices* in Chapter 2). These measures would include provisions for appropriate handling of any hazardous materials used on the project sites, as well as a Spill Prevention and Response Plan to minimize the potential for, and effects from, spills occurring during project construction. The Plan will describe transport, storage, and disposal procedures; construction site housekeeping practices, and monitoring and spill response protocols. The District will be responsible for ensuring that both the hazardous pollutant control measures and the Spill Prevention and Response Plan are appropriately implemented by all contractors. With these plans and procedures in place, potential impacts related to hazardous materials use at all of the project sites are expected to be less than significant, and no mitigation is required.

Operation

During operation of the ARWTF facilities, the project would involve the routine transport, use, and/or disposal of hazardous materials such as sodium hypochlorite, aqua ammonia, citric acid, sodium hydroxide, and sulfuric acid during the treatment process. A number of these materials have the potential to create a hazard to the public if they are accidentally released into the environment. However, the potential for accidental release as a result of improper storage would be reduced because chemicals would be stored in appropriate secondary containment within reinforced concrete containment areas. Furthermore, the project would be subject to the requirements of California Health and Safety Code (CHSC) Section 25504, and CCR Sections 2729-2732, which require submittal of a Hazardous Materials Business Plan (HMBP). The HMBP for the proposed project, as with any facility subject to these requirements, would include an inventory of hazardous materials stored onsite, a disclosure of risks associated with hazardous materials exposure, a site map, an emergency response plan, a spill prevention plan, a closure plan, an employee training program, and a list of emergency contacts. With the HMBP in place, materials would be stored, handled, and, if necessary, remediated in accordance to pre-defined procedures. Therefore, in light of the containment facilities described

above and the District's adherence to the proper handling, storage, and response procedures as detailed in the HMBP, impacts due to hazardous materials releases during project operation are expected to be less than significant. No mitigation is required.

Impact HAZ-2: Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School (No Impact)

As stated above, the nearest school is located over 1 mile from the project site. Therefore, there would be no impact.

Impact HAZ-3: Be Located on a Site That Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5 (No Impact)

The project site is not listed on any database or registry of sites contaminated by hazardous materials. No impact related to known hazardous materials contamination is expected, and no mitigation is required.

Impact HAZ-4: Be Located within an Airport Land Use Plan Area or within Two Miles of a Public Airport or Public Use Airport and Result in a Safety Hazard for People Residing or Working in the Project Area (No Impact)

The proposed project is not located within a land use plan area, and is not within two miles of a public or private airport. Therefore, there would be no impact as a result of the proposed project.

Impact HAZ-5: Be Located within the Vicinity of a Private Airstrip and Result in a Safety Hazard for People Residing or Working in the Project Area (No Impact)

There are no public or private airports near the project area; subsequently, there would be no impact resulting from the proposed project.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan (Less than Significant)

The proposed project may result in increased traffic on roads near the ARWTF during construction. However, Los Esteros Road and Zanker Road are not heavily traveled, and it is unlikely that increased traffic would result in interference with any emergency response or evacuation plans. Therefore, the impact is less than significant.

Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires (No Impact)

There are no wildlands in the project vicinity; consequently, there would be no impact.

3.9 Hydrology and Water Quality

Affected Environment

The project site is located in the City of San Jose in northern Santa Clara County, which experiences moderate temperatures and precipitation. Rainfall in the San Jose area averages 14 inches annually, and occurs primarily between November and April (City of San Jose 1994).

The site is located near the southern end of San Francisco Bay, a 4,500-square mile drainage basin that includes portions of San Francisco, Marin, Sonoma, Napa, Solano, San Mateo, Santa Clara, Contra Costa, and Alameda counties. Major streams in the project vicinity include Coyote Creek and Guadalupe River, both of which drain north to the Bay. The site is bordered on the east by a densely vegetated agricultural drainage ditch, which originates at the sludge ponds north of the property and extends approximately 1/4-mile inland, running approximately parallel to Zanker Road.

Regulatory Framework

Federal Clean Water Act Section 402 establishes a framework for regulating municipal water discharges under the NPDES program. In turn, the San Francisco Bay RWQCB establishes standards for the quality of storm water discharges under its NPDES permits.

The project site would be under the jurisdiction of the San Francisco Bay RWQCB and the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). As a participant in the SCVURPPP and in accordance with

NPDES permit requirements, the City implements control measures to reduce stormwater pollutants from construction sites, areas of new development, or areas of significant redevelopment to the maximum extent practicable. These requirements are enforced by the City during development review.

Recent changes to the permit held by the SCVURPPP are detailed in RWQCB Revised Order 01-024 (NPDES Permit No. CAS029718). Revisions that potentially apply to the proposed project include Provision C.3, which specifies that significant development or redevelopment projects must include post-construction stormwater controls.

Most construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Construction Permit, which requires the applicant to file a public notice of intent to discharge stormwater, and to prepare and implement a SWPPP. The SWPPP must include a site map and a description of the proposed construction activities; demonstrate compliance with relevant local ordinances and regulations; and present the BMPs that will be implemented to prevent soil erosion and discharge of sediment and other construction-related pollutants to surface waters.

Flooding

A Flood Insurance Rate Map (FIRM) is the official map of a community prepared by the Federal Emergency Management Agency (FEMA) to delineate both the special flood hazard areas and the flood risk premium zones applicable to the community. According to the Federal Emergency Management Agency, the project area is located within the 100-year floodplain (Federal Emergency Management Agency 1995).

The SJ/SC WPCP and proposed project site have historically been affected by freshwater flooding from Coyote Creek. Recent improvements to the creek channel have included components related to the Coyote Creek Flood Control Project, completed in 1997, which increased the design capacity of the northern reach from approximately 2,000 cubic feet per second (cfs) to 15,000 cfs (City of San Jose 1998). These improvements have greatly reduced the frequency and severity of seasonal flooding from Coyote Creek. However, due to the cumulative circumstances surrounding potential tidal flooding from the Bay and potential overflows from Coyote Creek and Guadalupe River, the entire Alviso area is currently designated as being within the 100-year base floodplain.

Surface Water Quality

Water quality in a typical surface water body is influenced by processes and activities that take place upstream of the watershed. In a semi-urban environment, such as is present in the area lying north of SR 237, water quality is primarily affected by discharges from both point and nonpoint sources, including

winter storms, overland flow, construction sites, exposed soil, roofs, parking lots, and streets.

A number of water bodies in Santa Clara County are included in the 2006 State of California 303(d) list of impaired water bodies. Coyote Creek is listed by the RWQCB as an impaired water body due to elevated levels of diazinon; Guadalupe River is listed as an impaired water body for mercury; and South San Francisco Bay is impaired for pesticides chlordane, DDT, diazinon, and dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, dioxin-like PCBs, and selenium (State Water Resources Control Board 2006).

Groundwater

The North San José/Alviso area overlies the Santa Clara subbasin of the Santa Clara Valley Groundwater Basin. Groundwater in the Santa Clara subbasin is recharged through natural infiltration along stream channels and by direct percolation of precipitation (City of San Jose 2005a). Additionally, the District maintains an active artificial recharge program, which has resulted in high groundwater levels in recent years. Groundwater levels as high as 2 feet below sea level have been observed in Alviso during the dry season (City of San Jose 1998).

Threats to groundwater quality include those that result from the disinfection of drinking water imported through the Delta and the intrusion of salt water from San Francisco Bay into nearby groundwater aquifers (Santa Clara County 1994). Groundwater contamination, primarily from fuel products and volatile organic compounds, has also been identified as a significant problem in the project vicinity (U.S. Bureau of Reclamation 1995).

Typical TDS concentration in the Santa Clara subbasin is moderate to high, ranging is from 380 to 470 mg/L for the deep aquifer; and from 520 to 860 mg/L for the shallow aquifer. It should be also noted that elevated TDS concentrations associated with seawater intrusion (as high as 3,900 mg/L) were observed historically by the District in some wells adjacent to San Francisco Bay (Black & Veatch 2004).

Wastewater Effluent Discharge

Discharges from the SJ/SC WPCP are regulated under NPDES permit No.CA0037842 (Order No. 89-012), adopted January 18, 1989, with subsequent modifications. Under State Board Order WQ 90-5, the RWQCB was directed to amend the SJ/SC WPCP's NPDES permit to limit flows from the SJ/SC WPCP to 120 MGD Average Dry Weather Effluent Flow or to flows that would not further impact rare and endangered species habitat. In response, the City has developed a Clean Bay Strategy and a South Bay Action Plan to maintain wastewater discharge below a level of 120 MGD. The SJ/SC WPCP currently treats an average of 116.8 MGD of wastewater and discharges 100 MGD (dry

weather peak) into San Francisco Bay (City of San Jose 2005). Average dry weather effluent discharge to the Bay in 2007 was 95 MGD (Krupp pers comm). Treated wastewater effluent from the treatment plant flows into Artesian Slough, a tributary to Coyote Creek and South San Francisco Bay.

Recycled Water

Effects of Effluent Diversions to SBWR

Expansion of water recycling via the SBWR system is an important part of the City's effort to comply with the Water Board's discharge limits, and to prevent additional development-related flows from adversely impacting the salt marsh. During the peak summer season, SBWR diverts between 10 and 16 million gallons of recycled water per day for irrigation and industrial uses to over 500 customers throughout San Jose, Santa Clara, and Milpitas. This accounts for approximately 10 percent of the total volume of treated water at the SJ/SC WPCP (City of San Jose 2005b).

Future recycled water diversions from the plant are expected to increase proportionally in response to new development and to the eventual buildout of the SBWR system (City of San Jose 2005b). Impacts related to the buildout of the SBWR system were previously addressed in the Final Environmental Impact Statement (FEIS) for the SBWR Project (U.S. Bureau of Reclamation 1995), which is incorporated by reference in this document.

The FEIS was prepared at a project level to address the construction of Phase I of the SBWR project in the Golden Triangle Area (the area bounded by highways 237, 101, and 880) of north San Jose, which was recently completed, and at a programmatic level for Phase II of the project in Eastern Milpitas, southeast to Evergreen Valley, and the Highway 85/87 area, which is currently underway. Phase II of the SBWR expansion consists of installing facilities to supply an additional amount of water, up to 27,000 acre-feet per year, for either nonpotable or potable use. Although not specifically addressed in the FEIS as a facility required to meet the objectives of Phase I or Phase II of the project, the ARWTF would expand the production capabilities of the SJ/SC WPCP to meet the projected needs of reclaimed water users in both the Phase I and Phase II service areas. The ARWTF would not be used to convey recycled water to areas outside of the current SBWR system; furthermore, it is not anticipated that the SBWR system would expand beyond the Phase I and II service areas described above. As such, the ARWTF would not be expected to increase the severity of the impacts addressed in FEIS.

Key findings of the FEIS regarding the water quality effects of diverting effluent to the SBWR system include:

- Reductions in the discharge of effluent from the SJ/SC WPCP would result in a beneficial reduction in metals loading to the Bay. Metals loading from the SJ/SC WPCP could be reduced by as much as 25 percent from 1995

levels with the reductions in wastewater discharge associated with implementation of Phase I and II of the SBWR Project.

- Minor reductions in dissolved oxygen would occur as a result of implementation of the SBWR project, but would not violate the objectives of the Water Quality Control Plan for the Basin Plan. Even if effluent flows from the SJ/SC WPCP were eliminated entirely and diverted to the SBWR, it would not cause the waters of Artesian Slough or the Bay to exceed the Basin Plan objective of 5.0 mg/L of dissolved oxygen.

Quality of Treated Tertiary Water

Based on water quality testing at the SJ/SC WPCP between 2004 and 2007, TDS levels from SJ/SC WPCP tertiary effluents have been consistently within a range of approximately 650 to 750 mg/L (Black and Veatch 2007), above the secondary drinking water standard of 500 mg/L for TDS. The TDS concentration exceeds 750 mg/L in very few instances during peak demand periods. As discussed in Chapter 1, *Recycled Water Benefits*, TDS can result in negative taste and odor impacts. TDS from recycled and potable irrigation water can also accumulate over time in the soil and migrate to groundwater, which can have adverse effects on soil permeability, vegetation, and overall groundwater quality (Black and Veatch 2004).

Recycled water from the SBWR is currently used for landscaping and agricultural irrigation by end users throughout San Jose, Santa Clara, and Milpitas; thus, treated tertiary water from the SJ/SC WPCP could potentially affect groundwater in isolated areas of the Santa Clara and Coyote subbasins. As discussed above, typical TDS concentration in the Santa Clara Subbasin is moderate to high, ranging from 380 to 860 mg/L for both the shallow and deep aquifers. The typical TDS concentration in the Coyote subbasin is generally lower than that of the Santa Clara subbasin, ranging from 330 to 400 mg/L (Black & Veatch 2004).

Environmental Consequences

Criteria used for determining the significance of hydrology and water quality impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- violate any water quality standards, waste discharge requirements, or otherwise substantially degrade water quality;
- deplete substantially groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level;
- alter substantially the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite;

- alter substantially 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 that would result in flooding onsite or offsite;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- expose people, structures, or facilities to increased risk of inundation by seiche, tsunami, or mudflow..

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact HYD-1: Violate Any Water Quality Standards or Waste Discharge Requirements (Less than Significant)

In general, the proposed diversion of effluent discharge from the SJ/SC WPCP to the SBWR system would not result in significant reductions of dissolved oxygen in Artesian Slough, and would have a beneficial impact on metals loading in San Francisco Bay. Because the ARWTF would be producing high-purity recycled water for the SBWR system, it would comply with all Title 22 treatment and water quality requirements for recycled water. Additionally, by blending high-purity recycled water with existing recycled water in the SBWR system, the resultant blended water would meet the secondary treatment standard of 500 mg/L for TDS. This would have an overall beneficial impact on quality of water available for irrigation, landscaping, and other uses, and would also reduce the concentration of TDS potentially infiltrating into local groundwater supplies.

As discussed in Chapter 2, *Project Characteristics*, RO concentrate (reject) from the ARWTF would be sent upstream of the existing serpentine chlorine contact tanks at SJ/SC WPCP, where it would be blended with the plant effluent for discharge to the Bay. The resulting final combined effluent discharge stream could affect the SJ/SC WPCP's NPDES permit in two possible ways.

1. It could affect the effluent limitations for pollutants defined in the permit; and/or
2. It could affect the acute and chronic toxicity limits defined in the permit.

To determine pollutant concentrations in the ARWTF's RO concentrate stream and its likely impact on final effluent quality, an analysis using a mass balance model was performed by Eisenberg, Olivieri and Associates, Inc. (2008). The analysis considered conventional pollutants (carbonaceous biological oxygen demand [CDOB], total suspended solids [TSS], and ammonia) and toxic pollutants that are regulated (or potentially regulated) under the SJ/SC WPCP's NPDES Permit. To approximate the effects of the RO concentrate stream on final effluent quality, the analysis evaluated a project that would blend 8 MGD RO permeate with a slightly greater amount of tertiary effluent, to produce a total of 16.8 MGD blended recycled water. A similar analysis was conducted for a 12 MGD of RO permeate scenario. Results of the analysis indicate that a project having a similar RO concentrate stream to that of the proposed ARWTF would have only a minor impact on pollutant concentrations in final effluent discharged to the Bay, raising those concentrations by about 8% and 13%, respectively, from current levels, and would not create any compliance issues with SJ/SC WPCP's existing NPDES Permit (Eisenberg, Olivieri and Associates, Inc. 2008).

In order to have an adverse effect on acute and chronic toxicity, the proposed project, through the contribution of RO concentrate to the SJ/SC WPCP's final effluent discharge stream, would have to cause the exceedance of the acute and chronic Whole Effluent Toxicity (WET) limits stipulated in the SJ/SC WPCP's NPDES permit (Order No. R2-2009-0038)⁴. These limits are defined as follows.

- Acute toxicity limit is an 11-sample median value of not less than 90 percent survival, and an 11-sample 90th percentile value of not less than 70 percent survival.
- Chronic toxicity limit is a three-sample median value equal to or less than 1 toxicity unit (TUc) and a single-sample value equal of 2 TUc or greater.

The effects of projected blended effluent qualities on acute and chronic toxicity are not amenable to analysis by a mass balance approach or by qualitative assessment, but rather are evaluated through the use of screening level laboratory toxicity testing studies consistent with US EPA testing standards. Typically, toxicity in RO testing studies is measured directly by exposing test organisms to varying RO/effluent blends in laboratory tests and measuring their responses. Acute and chronic toxicity testing⁵ employs a multi-concentration test, consisting of at least one control and a minimum of five effluent concentrations (EPA 2002a, 2002b). Tests are designed to determine the adverse effects of effluents and receiving waters on the survival of the test organisms.

⁴ Attachment E in the SJ/SC WPCP's NPDES permit requires acute toxicity compliance monitoring on a monthly basis using rainbow trout (*Onchorhynchus mykiss*) and chronic toxic monitoring on a monthly basis using water flea (*Ceriodaphnia dubia*). When exceedances of the testing limits occur, the permit calls for a period of accelerated monitoring until toxicity drops below triggered levels. If accelerated monitoring confirms consistent toxicity above triggered levels, the WPCP must initiate toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) procedures in accordance with the WPCP's current TRE workplan.

⁵ Acute toxicity testing is used to determine the concentration of effluent or ambient waters that causes an adverse effect (usually death) on a group of test organisms during a short-term exposure (e.g., 24, 48, or 96 hours). Chronic toxicity testing involves a short-term test, usually 96 hours or longer in duration, in which sublethal effects (e.g., significantly reduced growth or reproduction) are usually measured in addition to lethality.

Although an RO testing study for the proposed project is currently underway, the results of the study have not been evaluated. In lieu of project-specific toxicity testing data, the project's likely effects on the SJ/SC WPCP's permitted WET limits are instead evaluated based on a previous toxicity study undertaken for the EBMUD Richmond Advanced Recycled Expansion (RARE) Project, a project of similar design.

The RARE Project, which was analyzed in the *Final Environmental Impact Report for the RARE Water Project* (ESA 2007), will treat up to 4 MGD of recycled water within the Chevron Richmond Refinery property in Richmond, California. Secondary effluent from the West County Wastewater District Water Pollution Control Plant (WCWD WPCP) will undergo microfiltration (MF) and reverse osmosis (RO) at the RARE treatment plant to produce high-purity recycled water that would be used at Chevron as boiler makeup water. The RO reject stream from the facility will be blended with Chevron's treated effluent and then discharged to San Pablo Bay through a deep water diffuser (ESA 2007). The RO pilot tests for the RARE facility involved multiple rounds of multispecies screening using rainbow trout (*Onchorhynchus mykiss*), inland silverside minnow (*Menidia beryllina*), opossum shrimp (*Americamysis bahia*), giant kelp (*Macrocystis pyrifera*), and red abalone (*Haliotis rufescens*) (ESA 2007). Because the Chevron facility is a deepwater discharger, the RO blend rate used during the RARE pilot tests was considerably higher than the projected RO blend rate associated with operation of the ARWTF.⁶ The WET limits under the Chevron facility's NPDES permit, defined below, are also much higher in comparison to the the permitted limits of the SJ/SC WPCP.

- Acute toxicity limit is an 11-sample median value of not less than 90 percent survival, and an 11-sample 90th percentile value of not less than 70 percent survival.
- Chronic toxicity limit is a three-sample median value equal to or less than 10 TUc and a single-sample value equal to or less than 20 TUc.

As shown in Tables 3-15 and 3-16 below, almost all of the acute toxicity tests for the final combined effluent of the RARE and Chevron facility showed 100 percent survival of the tested species, and almost all chronic toxicity tests showed results of less than one toxicity unit (< 1 TUc), which is substantially lower than the effluent limits of 10 and 20 TUc (ESA 2007).

⁶ The tested scenario for the RARE project was a blend of 22 percent RO concentrate and 78 percent effluent. For the proposed ARWTF, operation of the facility would likely result in a blend of 2 percent RO concentrate and 98 percent effluent.

Table 3-15. RARE Project RO Pilot Study Testing Results – Acute Toxicity

Test Treatment	Mean Percent Survival (%)	
	Round A	Round B
Rainbow trout (<i>Onchorhynchus mykiss</i>)		
Lab control	100	100
Final combined effluent	100	100
Inland silverside minnow (<i>Menidia beryllina</i>)		
Lab control	90	85 ¹
Final combined effluent	100	100

Note:

¹This value is below the normal 90 percent NPDES compliance acceptability threshold. However, a second laboratory control test was run concurrently for a different batch of samples using the same batch of test organisms that showed 100 percent survival. The average of the two control results produced a survival of 92 percent, which was an acceptable lab control result.

Source: ESA 2007.

Table 3-16. RARE Project RO Pilot Study Testing Results – Chronic Toxicity

Test Treatment	TUc
Inland silverside minnow (<i>Menidia beryllina</i>)	<1.0
Opossum shrimp (<i>Americamysis bahia</i>)	<1.0
Giant kelp (<i>Macrocystis pyrifera</i>)	<1.0
Red abalone (<i>Haliotis rufescens</i>)	3.2

Source: ESA 2007.

The results of the RARE pilot testing study, which tested a much higher blend of RO concentrate (22 percent) than would likely result from operation of the proposed ARWTF (2 percent), indicate that the final combined effluent from the RARE and Chevron facilities had little or no effect on toxicity. Given these results, it is anticipated that the final combined effluent of the ARWTF and SJ/SC WPCP would also remain well below all NPDES permit limits.

Overall, it is assumed that the proposed project would not result in the violation of any water quality standards or waste discharge requirements through the

discharge of RO concentrate in the SJ/SC WPCP's final effluent stream. The project is therefore expected to have a less-than-significant impact on water quality. No mitigation is required.

Impact HYD-2: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge (Less than Significant)

The project would not be utilizing groundwater for any of the facilities proposed; rather, it would be treating secondary effluent from the SJ/SC WPCP and feeding it directly into the SBWR system. The project would result in reduced pervious surface area, which currently contributes to groundwater recharge. However, given the small size of the facility footprint, the effects of the proposed project are anticipated to be less than significant. No mitigation is required.

Impact HYD-3: Cause Alterations in Drainage Contributing to Increased Erosion, Siltation, Flooding, or Excess Runoff or Otherwise Substantially Degrade Water Quality (Less than Significant)

Although the proposed project would not, in general, substantially alter the existing drainage pattern, the added impervious surfaces from the project would potentially increase stormwater runoff from the site. Impervious surfaces prevent natural absorption and pollutant filtration of storm runoff compared to natural pervious (permeable) ground cover. Increasing the area of impervious surfaces can thus result in greater volume, velocity, and pollutant loading of storm runoff discharged to creeks, which could adversely affect water quality of water bodies downstream from the project site. The total area of impervious surfaces created by the proposed project is shown in Table 3-17 below.

Table 3-17. New Impervious Surfaces

Facility	Area of Impervious (sq ft)
Influent Pump Station and Autostrainers	1,500
Waste Equalization Tank	491
Process Building	30,800
Chemical Storage and Feed Facilities	9,200
Product Water Storage Tank	9,503
Inter Process Storage Tank, RO Transfer Pump, and Cartridge Filters	5,405
Decarbonation Towers and UV Feed Pumps	2,500

Facility	Area of Impervious (sq ft)
Electrical Service Equipment	1,300
Access Road	43,360
Total Impervious Surfaces¹	60,700 (1.4 acres)
Note:	
¹ Total does not include the proposed parking area at the ARWTF. Design-level details of the parking area are not available at this time.	
Source: Black & Veach, pers. comm.	

The potential for chemical releases is also present at the project site. Once released, substances such as fuels, oils, paints, and solvents could be transported to nearby surface waterways and/or groundwater in storm water runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters. These impacts are considered potentially significant. However, because the project would disturb more than 1 acre of land during construction, the project proponent and/or contractor would be required comply with the City of San Jose's NPDES General Construction Activities Permit through development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would include measures to protect surrounding water quality from accidental spills and sedimentation during construction activities, as described in Section 2, *Best Management Practices*. Therefore, the proposed project would have a less-than-significant impact on surface-and groundwater quality. No mitigation is required.

Impact HYD-4: Place Housing within a 100-Year Flood Hazard Area (No Impact)

The project would not involve the creation or relocation of any housing. There would be no impact.

Impact HYD-5: Place Within A 100-Year Flood Hazard Area Structures That Would Impede or Redirect Floodflows (Less than Significant)

The proposed project would be situated in a 100-year flood hazard area, as described above. However, the facility would not represent a substantial structural impediment to floodflows because it would occupy a small portion of a broad floodplain at the southern edge of San Francisco Bay, where flows are typically dispersed across a large area. Further, floods due to tidal inundation, which have historically occurred in the Alviso area, typically result in a low velocity and volume of floodwater, which would not be expected to rise or surge significantly as a result of being impeded or redirected. Consequently, given the nature of the surrounding floodplain and the low velocity and volume of flood

flows in the area, this impact would be less than significant. No mitigation is required.

Impact HYD-6: 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 (Less than Significant)

The project site is located within an area that is potentially subject to flooding. However, as discussed in Chapter 2, *Project Overview*, the ARWTF would be graded to an elevation of 10 feet to raise the site above the existing 100-year floodplain. Thus, structural impacts due to flooding are expected to be less than significant. No mitigation is required.

Impact HYD/WQ-7: Contribute to Inundation by Seiche, Tsunami, or Mudflow (Less than Significant)

The project would not cause substantial exposure to risks involving seiche, tsunami, or mudflow because of its distant location from an ocean. Potentially, a tsunami could enter San Francisco Bay via the Golden Gate; however, it would be greatly attenuated if it were to reach the proposed project site, and would not be expected to cause substantial damage. Therefore, impacts related to inundation by seiche, tsunami, or mudflow would be less than significant. No mitigation is required.

3.10 Land Use and Planning

Affected Environment

The proposed project site is located near Alviso in northern Santa Clara County. The site is located in an undeveloped area east of the existing transmission pump station. The pump station is located across Los Esteros Road from the SJ/SC WPCP (Figure 2-1). No residential uses surround the SJ/SC WPCP nor are there any recreational sites close by. The proposed project site on Zanker Road is zoned light industrial (City of San Jose 2009a). The San Jose General Plan land use map designates the proposed site as public/quasi-public (City of San Jose 2006a). The Los Esteros Critical Energy Facility is located approximately 600 feet east of the proposed site.

Environmental Consequences

Criteria used for determining the significance of land use and planning impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- physically divide an established community;
- 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; or
- conflict with any applicable habitat conservation plan or natural community conservation plan.

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact LU-1: Physically Divide an Established Community (No Impact)

The proposed project would be constructed east of the SJ/SC WPCP on Zanker Road in an undeveloped area. The proposed ARWTF would not physically divide an established community.

Impact LU-2: Conflict with Any Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction Over the Project (No Impact)

Because the proposed project site would involve industrial land use, it would not require or result in any changes in City land use or zoning designations. Further, it would not conflict with the City of San Jose General Plan land use goals and policies.

Impact LU-3: Conflict with Any Applicable Habitat Conservation Plan or Natural Community Conservation Plan (No Impact)

As discussed in Section 3.5, “Biological Resources,” no habitat conservation plan (HCP) or natural community conservation plan (NCCP) exists for the project area. Santa Clara County, the Cities of San Jose, Gilroy and Morgan Hill, the Santa Clara VTA, the SCVWD, the DFG, the USFWS, and the NMFS have jointly initiated the process to prepare and manage a Santa Clara County HCP/NCCP, but this HCP/NCCP is only in the preliminary planning stages. No other HCPs, NCCPs, or other approved local, regional, or state HCPs are applicable to the project area. Therefore, there would be no impact.

3.11 Mineral Resources

Affected Environment

Based on the existing CGS classifications of this region, the project site has been classified as MRZ-1, and is not likely to contain significant mineral deposits (Kohler-Antablin 1999).

Environmental Consequences

Criteria used for determining the significance of mineral resources impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact MR-1: Result in the Loss of Availability of a Known Mineral Resource or a Locally Important Mineral Resource Recovery Site (No Impact)

The proposed project site is not delineated as a significant Mineral Resource Zone, and no mineral deposits of regional or statewide significance are known to occur in the project vicinity. Therefore, no impact on the availability of mineral resources is anticipated.

3.12 Noise

Affected Environment

The proposed project area lies within the County of Santa Clara and is subject to the requirements established by the County.

Noise Terminology

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (L_{xx}), the day-night sound level (L_{dn}), and the community noise equivalent level (CNEL). Below are brief definitions of these measurements and other terminology used in this evaluation.

- **Sound.** A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Ambient Noise.** The composite of noise from all sources near and far in a given environment exclusive of particular noise sources to be measured.
- **Decibel (dB).** A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels, which approximates the frequency response of the human ear.
- **Equivalent Sound Level (L_{eq}).** The average of sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period.
- **Exceedance Sound Level (L_{xx}).** The sound level exceeded xx percent of the time during a sound level measurement period. For example, L_{90} is the sound level exceeded 90% of the time and L_{10} is the sound level exceeded 10% of the time.
- **Maximum and Minimum Sound Levels (L_{max} and L_{min}).** The maximum or minimum sound level measured during a measurement period.
- **Day-Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m., and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.

L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent and are treated as such in this assessment. In general, human sound perception is such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving sound level.

City of San Jose General Plan Guidelines

Noise regulations applicable within the City are found in the San Jose 2020 General Plan Goals and Policies section. The City of San Jose maintains a short-term outdoor guideline of 60 DNL and an indoor noise guideline of 45 DNL.

The City's exterior noise limits are summarized in Figure 3-1.

Existing Conditions

The proposed project site is located on the existing SJ/SC WPCP site, and is primarily surrounded by undeveloped agricultural land. Predominant sources of noise within the proposed project area include occasional vehicles on Zanker Road, and occasional aircraft over flights.

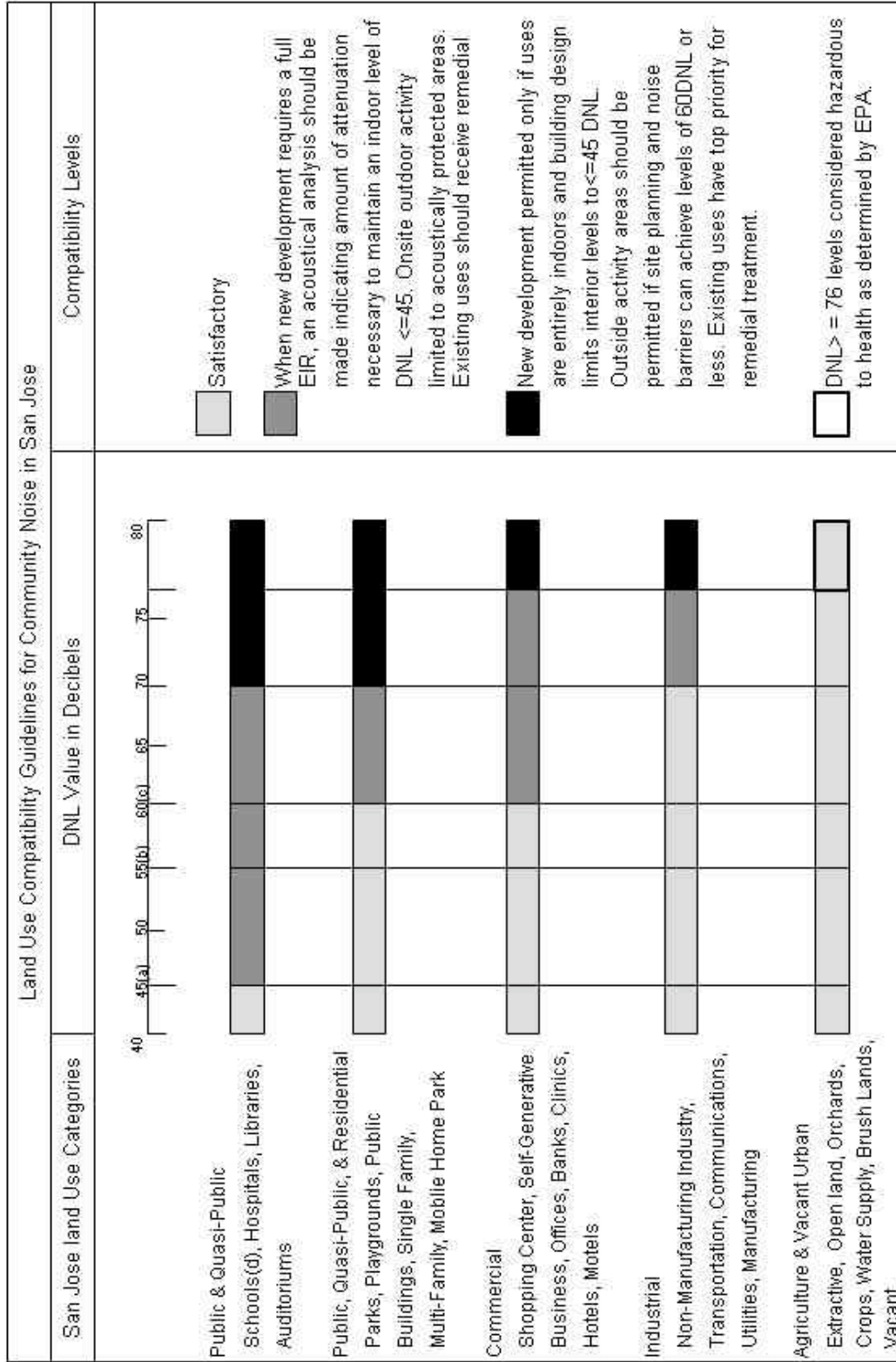
Noise Sensitive Land Uses

Sensitive land uses are generally defined as locations where people reside or where the presence of noise could adversely affect the use of the land. Typical noise-sensitive land uses include residences, schools, hospitals, and parks. Noise-sensitive land uses in the project area that could be affected by the project include a residential subdivision located approximately 0.8 miles south of the proposed project site, Jubilee Christian Center, which is located approximately one mile southwest of the project site, and Anthony Spangler Elementary School, which is located approximately 1.4 miles southeast of the project site.

Environmental Consequences

Criteria used for determining the significance of noise impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies;
- expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- be located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport and



(a) Interior Noise Quality Level
(b) Long-Range Exterior Noise Quality Level
(c) Short-Range Exterior Noise Quality Level
(d) Leq value of Leq (30) = Is used for the evaluation of school impact by the airport

expose people residing or working in the project area to excessive noise levels; or

- be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels.

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact NOI-1: Expose Persons to or Generate Noise Levels in Excess of Standards Established in a Local General Plan or Noise Ordinance or Applicable Standards of Other Agencies (Less than Significant)

Construction

Noise from construction activities would include noise from grading, excavation, and other earthmoving activities. Additionally, construction noise also results from machinery and equipment used in the construction process. A detailed inventory of construction equipment that will be used for the proposed project was not available; therefore, this noise analysis is based on anticipated construction equipment that will be used during earthmoving and construction activities. Table 3-18 presents a list of noise generation levels for various types of equipment typically used on construction projects. The list, compiled by the Federal Transit Administration (2006), was used in this analysis to estimate construction noise. A reasonable worst-case assumption is that the three loudest pieces of equipment for each phase would operate simultaneously and continuously over at least a 1-hour period for a combined source noise level.

Table 3-18. Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level 50 feet from Source (dBA)
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81

Grader	85
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Roller	74
Scraper	89
Truck	88

Source: Federal Transit Administration 2006.

Noise from construction activity typically attenuates at a rate of 6 dB per doubling of distance. Additional attenuation of approximately 1-2 dB per doubling of distance also occurs where the ground is acoustically absorptive (i.e., vegetation covers the ground). Assuming a nominal worst-case construction noise level between 85 and 90 dBA at 50 feet for several pieces of equipment operating simultaneously, construction noise can be expected to be as high as the following levels at various distances from the construction activity:

- 85-90 dBA- L_{\max} at 50 feet
- 77-82 dBA- L_{\max} at 100 feet
- 69-74 dBA- L_{\max} at 200 feet
- 61-66 dBA- L_{\max} at 400 feet
- 53-58 dBA- L_{\max} at 800 feet
- 46-51 dBA- L_{\max} at 1,600 feet

As stated above, the nearest sensitive receptors are located approximately 0.8 miles (about 4,200 feet) from the proposed project site. Noise from construction proposed project would not exceed the standards of the City of San Jose noise regulations; therefore, this impact is considered less than significant. In addition, the District will adhere to the following BMPs (see Chapter 2, *Best Management Practices*), which will further reduce this impact:

- In general, work will be conducted during normal working hours. Extending weekday hours and working weekends may be necessary to complete some projects.
- Internal combustion engines will be equipped with adequate mufflers.
- Excessive idling of vehicles will be prohibited.
- All construction equipment will be equipped with manufacture's standard noise control devices.

- The arrival and departure of trucks hauling material will be limited to the hours of construction.
- The use of jake brakes is prohibited in residential areas. .

Operation

Noise generating operations associated with the proposed project would include additional equipment associated with the ARWTF facility. Aspects of the proposed project that could potentially generate noise include the MF/UF system, and valves used for the compressed air and blower systems. However, each of these structures would be enclosed in a structure which would attenuate noise, and the valves on the blower system are not burst valves and would relieve pressure slowly. Furthermore, information provided by the District indicates that a small number of operators would operate the facility; therefore, changes in traffic noise would be minimal. Because the noise-generating components of the proposed project would be enclosed, operational traffic noise would increase nominally over baseline conditions, and no sensitive receptors occur near the project site, this impact is considered less than significant. No mitigation is required.

Impact NOI-2: Expose Persons to or Generate Excessive Groundborne Vibration or Groundborne Noise Levels (No Impact)

Operation of heavy equipment may generate localized groundborne vibration and noise. However, the nearest sensitive receptors are located approximately 0.8 mile from the project site. Pipes leading to the blower system would be supported every 5 feet to reduce vibration. Furthermore, because potential groundborne vibration and noise would be temporary and would occur only during daylight hours, groundborne vibration and noise impacts are considered less than significant. No mitigation is required.

Impact NOI-3: Cause a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project (Less than Significant)

The proposed project would result in an increase in ambient noise levels in the project vicinity. However, as discussed in the response to impact NOI-1 because there are no sensitive receptors near the project site, and because the noise-generating components of the ARWTF would be enclosed, this impact is considered less than significant. No mitigation is required.

Impact NOI-4: Cause a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project (Less than Significant)

Construction activities would result in a temporary increase in noise. However, as discussed in the response to impact NOI-1, there are no sensitive receptors near the project site. Consequently, this impact is considered less than significant. No mitigation is required.

Impact NOI-5: Be Located within an Airport Land Use Plan Area or within Two Miles of a Public Airport or Public Use Airport and Expose People Residing or Working in the Project Area to Excessive Noise Levels (No Impact)

The proposed project is not located within an airport land use plan referral area. The nearest public airport is the San Jose International Airport, which is located approximately 3.5 miles from the project site. Therefore, there would be no impact.

Impact NOI-6: Be Located in the Vicinity of a Private Airstrip and Expose People Residing or Working in the Project Area to Excessive Noise Levels (No Impact)

The proposed project is not located within the vicinity of a private airstrip and therefore would not expose people to excessive noise levels. There would be no impact.

3.13 Population and Housing

Affected Environment

The project site is near Alviso in the City of San Jose. The population of Alviso was estimated to be 2,128 in the year 2000 (U. S. Census Bureau 2009). The estimated population of San Jose was approximately 953,679 as of January 1, 2006 (State of California, Department of Finance 2006a). The estimated total population of Santa Clara County as of January 2009 was 1,857,621 (State of California, Department of Finance 2009).

Environmental Consequences

Criteria used for determining the significance of population and housing impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- Induce substantial population growth in an area, either directly or indirectly; or
- Displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact POP-1: Induce Substantial Population Growth in an Area, Either Directly or Indirectly (Less than Significant)

The proposed ARWTF would offset existing potable water use in SBWR service areas by treating secondary effluent from the SJ/SC WPCP to a higher standard and providing higher quality recycled water to SBWR end users. As determined in the growth inducement analysis in Chapter 5 (see *Growth-Inducing Impacts*), the project would not support growth within the SBWR service areas beyond planned levels or in areas not planned for development by the appropriate land use agencies; thus, it is anticipated that the project would not have a substantial impact on population growth. Impacts would therefore be less than significant, and no mitigation is required.

Impact POP-2: Displace a Substantial Number of Existing Housing Units or People, Necessitating the Construction of Replacement Housing Elsewhere (No Impact)

Implementation of the proposed action would not require removal of any residences. Although it would constitute an improvement in the services that are currently available to the project area and vicinity, the proposed project would not adversely affect the affordability of remaining housing in the project vicinity. Therefore, there would be no impact.

3.14 Public Services

Affected Environment

Fire protection services for the San Jose/Santa Clara Water Pollution Control Plant are provided by the San Jose Fire Department and is located on Wilson Way (San Jose Fire Department pers. comm.). This station is a one engine company with one captain, one fire engineer, and four firefighters (San Jose Fire Department pers. comm.).

Police protection services for the project area are provided by the City of San Jose Police Department. In 2009, the police department employs over 1,343

sworn officers (City of San Jose 2006c). In the San Jose General Plan (City of San Jose 2008), it was noted that more police protection would be needed in the future, due to an increase in population and housing units. An additional 362 sworn officers from 2008 to 2012 would need to be hired to maintain the service levels of response time of six minutes or less for 60% of priority 1 calls and eleven minutes or less for 60% of priority 2 calls was needed to maintain service levels (City of San Jose 2006c). In addition to regular police services, there is a policing center located in Alviso. The Policing Center provides information on various public services, accepts evidence, does fingerprinting, and maintains a Megan's Law list (San Jose Police Department 2009).

There is one elementary school located in Alviso, George Mayne. Middle school children are bused to Peterson Middle School in Sunnyvale and high schoolers are bused to Wilcox High School in Santa Clara (Community of Alviso n.d.).

Alviso provides recreational opportunities through the Don Edwards San Francisco Bay National Wildlife Refuge, the Alviso Marina, Alviso Slough trail, and Alviso Park (Community of Alviso n.d.). A more comprehensive description of recreational resources is included in the Recreation section of this document.

Environmental Consequences

Criteria used for determining the significance of public services impact are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, or schools;

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact PS-1: Result in Substantial Adverse Effects Associated with the Provision of or Need for New or Physically Altered Governmental Facilities (No Impact)

The proposed project would not result in the need for additional service or the expansion of existing facilities for any of the public services provided by Alviso, City of San Jose, or other relevant jurisdictions or agencies. The ARWTF would not induce population growth that could result in the need for new or physically altered governmental facilities. Therefore, there would be no impact.

3.15 Recreation

Affected Environment

Nearby in Alviso, a variety of recreational areas are available (see Table 3-19). Several parks, county and regional, as well as the Don Edwards San Francisco Bay National Wildlife Refuge and several trails are located close to Alviso. The closest local recreational facility to the project site is Alviso Park, which is located 0.5-mile from the project site.

Table 3-19. Recreation Facilities in the Project Vicinity

Parks	Reserves and Refuges	Other Recreational Facilities
Mountain View	Don Edwards San Francisco Bay National Wildlife Refuge (NWR)	Bay Trail
Shoreline Park		Stevens Creek Nature Study Area
Palo Alto Baylands Park	Palo Alto Baylands	Stevens Creek Trail
Sunnyvale Baylands	Nature Preserve	San Tomas Aquino Creek Trail
		Guadalupe River Trail
		Coyote Creek Trail
Source: Life Science 2003.		

Environmental Consequences

Criteria used for determining the significance of recreation impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- 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;
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment;

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact REC-1: 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 (No Impact)

The ARWTF would neither increase the use of existing parks nor require the construction or expansion of existing recreational facilities. No impact would occur.

Impact REC-2: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities that Might Have an Adverse Physical Effect on the Environment (No Impact)

The ARWTF would neither increase the use of existing parks nor require the construction or expansion of existing recreational facilities. No impact would occur.

3.16 Transportation and Traffic

Affected Environment

Vehicular Access

The ARWTF project site is located adjacent to Zanker Road. Near the project site, Los Esteros Road, a two-lane, undivided roadway that changes designation to Zanker Road. Regional access to the site is provided via SR 237, a six-lane freeway that provides access to US 101 and I-880. A full-access interchange with Zanker Road provides freeway access to the project site.

Level of Service Definitions, Standards, and Significance Criteria

Definitions

The quality of service provided by a roadway or intersection is usually measured in terms of three parameters.

- **Level of service (LOS):** A qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience.

- **Volume to capacity (V/C) ratio:** The number of vehicles that travel on a transportation facility divided by the full vehicular capacity of that facility (the number of vehicles the facility was designed to convey).
- **Delay:** The additional travel time experienced by a vehicle or traveler because of inability to travel at optimal speed, and/or stops due to congestion or traffic control.

Table 3-20 shows the relationship between V/C ratio, delay, driving conditions and LOS.

Table 3-20. V/C Ratio, Delay, and Traffic Flow Conditions for LOS Designations

LOS	Approximate Maximum V/C	Average Delay (seconds per vehicle)		Traffic Flow Conditions
		Stop-Controlled Intersection	Signalized Intersection	
A	0.6	≤10	≤10	Free-flow operations; vehicles unimpeded in ability to maneuver in traffic stream.
B	0.7	11–15	11–20	Reasonable free-flow conditions; only slightly restricted ability to maneuver.
C	0.8	16–25	21–35	Flows still near free-flow speed but noticeably restricted ability to maneuver.
D	0.9	26–35	36–55	Speeds begin to decline; maneuverability limited and queues begin to form.
E	1.0	36–50	56–80	Operation at capacity of roadway; maneuverability extremely limited and queues form with any disruption.
F	>1.0	>50	>80	Failure conditions indicating breakdowns in vehicular flow with long queues forming at breakdown points.

Source: Transportation Research Board 2000.

Intersection Levels of Service Standards

The City of San Jose has defined the limit of acceptable operations as LOS D (City of San Jose 1994). Significant traffic impacts at intersections are defined to occur when the addition of new project traffic causes traffic operating conditions to deteriorate from an acceptable level of service to an unacceptable level, or for LOS D or better to LOS E or F.

Highway/Freeway Levels of Service Standards

As the Congestion Management Agency of Santa Clara County, the Santa Clara Valley Transportation Authority (VTA) requires a freeway level of service

analysis if the number of project trips added to any freeway segment exceeds one percent of the capacity of the segment. VTA's Congestion Management Program (CMP) Traffic Impact Analysis Guidelines (Santa Clara Valley Transportation Authority 2003), defines capacity for segments with less than six lanes as 2,200 vehicles per hour per lane (vphpl). As discussed above, SR 237 consists of two mixed flow lanes plus one high occupancy vehicle (HOV) lane in each direction in the vicinity of the project site; thus, the total segment capacity for the mixed flow lanes on SR 237 would be 4,400 vehicles per hour. The CMP defines capacity for HOV lanes, which are analyzed separately from mixed flow lanes, as 1,800 vphpl; however, it is not expected that construction-related project traffic would utilize the HOV lanes. Thus, a significant traffic impacts on SR 237 are defined to occur if added project traffic at peak hour exceeds 1 percent of the total segment capacity of SR 237, which would be 44 vehicles per hour.

Existing Levels of Service – Intersection of Zanker Road and SR 237

As discussed above, analysis of existing intersection levels of service in the project vicinity relies upon the traffic analysis in the Zanker Road Resource Recovery Operation and Landfill (ZRRROL) IS/MND (City of San Jose 2009b). Specifically, the project involves issuance of a Planned Development permit to allow for an increase in the amount of material processed at the existing facility from 1,300 tons per day (tpd) to 2,600 tpd and allow for the limited off-site disposal of residual non-recyclable material. The ZRRROL site is located on the north side of Los Esteros Road, less than 0.25 miles north of the SJ/SC WPCP. In support of that project, existing AM and PM peak hour traffic volumes were recorded at the intersection of Zanker Road and the northbound and southbound segments of SR 237.

Because the ZRRROL's revised PD permit has since been approved by the City, the proposed project must be evaluated based on the ZRRROL's project conditions (future traffic conditions with added traffic from ZRRROL), as discussed in the 2009 Initial Study. In that study, the traffic analysis found that the intersection of Zanker Road and the northbound and southbound segments SR 237 would operate acceptably at LOS C or better during peak hours with the addition of ZRRROL's project traffic. Thus, as a worst case, a service level of LOS C is assumed to represent the background operating condition at the intersection during peak hours.

Transit

The project area is not served by any transit service.

Bikeways

The existing bicycle facilities in the study area include Class II (on-street) bike lanes on Zanker Road south of SR 237, and a multi-use trail north of SR 237 between Zanker Road and Coyote Creek. No other bicycle facilities occur in the project vicinity.

Environmental Consequences

Criteria used for determining the significance of transportation and traffic impacts are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- cause an increase in traffic that is substantial in relation to the existing traffic volumes and capacity of the roadway system (e.g., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
- exceed, either individually or cumulatively, a LOS standard established by local jurisdictions for designated roadways or highways;
- 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;
- substantially increase hazards to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity; or
- conflict with adopted policies supporting alternative transportation.

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact TR-1: Increase in Area Traffic Volumes and Degradation of LOS Attributable to Construction-Generated Traffic (Less than Significant with Mitigation)

Construction of the proposed project would generate additional temporary traffic on regional and local roadways. The proposed project would increase existing traffic volumes in the project vicinity, which could represent a significant impact.

According to City standards, traffic impacts at intersections are considered to be significant if the addition of project traffic causes the following.

- Cause operating conditions to deteriorate from an acceptable level of service (LOS D or above) to an unacceptable level.

For a freeway segment, a significant impact would occur if project traffic would cause the following impacts.

- Result in an increase of more than one percent of the capacity on a highway or freeway segment

Potentially significant sources of vehicular traffic during the construction phase of the project would include construction worker commute trips, project equipment deliveries, and hauling of materials such as concrete, fill, and excavation spoils.

Workers commuting to construction sites would increase traffic in the project area. Based on preliminary estimates, it is estimated that, at a maximum, the daily project workforce would consist of between 20 and 50 workers over a 22-month period. Assuming, as a worst-case, that each worker drives alone, there would be a total of 50 round trips to and from the site each day, although the number of trips would decrease over time.

Haul truck traffic would include trucks carrying equipment, materials, and spoils for disposal. The exact routes and scheduling of truck trips are not known at this time. However, based on preliminary estimates, it is estimated that as many as 24 daily round trips, dispersed throughout the day, would occur during the initial four months of construction. Following this period, daily haul trips would decrease to a maximum of 18 round trips per day, and finally to a maximum 12 round trips per day for the final 15 months of construction. Thus, construction haul traffic would, as a worst case, generate a maximum of 24 daily round trips, although the number of trips would decrease over time.

The maximum number of round trips generated by the proposed project during the 22-month construction timeframe would be 65 trips. Although these trips would be temporary in nature and would be dispersed throughout the day, project traffic could substantially degrade the level of service at the Zanker Road/SR 237 intersection if it caused significant traffic delays at that intersection. Construction-related traffic could also substantially degrade traffic on SR 237 during peak hours if it added more than 44 vehicle trips per hour to the roadway during AM or PM peak hours. Furthermore, construction vehicles entering or exiting the site could result in temporary lane closures or cause temporary delays or stoppage of through traffic in the project vicinity, which could adversely affect local traffic circulation. Effects could be significant, particularly during peak hours.

To minimize these impacts, the District is including traffic control BMPs as part of the proposed project (see Chapter 2, *Best Management Practices*). Implementation of the District's Traffic Control BMPs in addition to implementation of a formal traffic control plan and coordination with the City to reduce peak hour traffic impacts, as described below in Mitigation Measure TR-1.1, would reduce potential impacts from project construction activities on level of service, traffic flow, and safety to a less-than-significant level.

Mitigation Measure TR-1.1: Coordinate with City to Reduce Peak Hour Traffic Impacts

To the extent feasible, construction haul trips on the regional roadway will be scheduled for non-peak periods when delays are less prevalent. The construction contractor will coordinate with the City to identify appropriate routings and times for site deliveries and comply with City recommendations.

Impact TR-2: Increase in Area Traffic Volumes and Degradation of LOS Attributable to Operational Traffic (Less than Significant)

Operation of the ARWTF would require several employee trips to the site each day, as well as monthly deliveries of chemicals. This amount of traffic would not result in substantial volumes of traffic or degradation of area roadway levels of service. Therefore, operational impacts on local or regional traffic would be less than significant, and no mitigation is required.

Impact TR-3: Change in Air Traffic Patterns that Results in Substantial Safety Risks (No Impact)

The project would not affect air traffic patterns. There would be no impact.

Impact TR-4: Substantially Increase Hazards Because of a Design Feature (No Impact)

The proposed project does not include any design features that would increase any types of traffic hazards. No adverse impacts are anticipated.

Impact TR-5: Result in Inadequate Emergency Access (Less than Significant with Mitigation)

During project construction, as described in Impact TR-1 above, slow-moving construction vehicles could result in traffic safety hazards. Emergency access in the area could also be affected by project construction; specifically, temporary lane closures and construction-related traffic could delay or obstruct the movement of emergency vehicles. This impact is considered less than significant with implementation of the District's Traffic Control BMPs in addition to Mitigation Measure TR-5.1.

Mitigation Measure TR-5.1: Coordinate with City to Reduce Peak Hour Traffic Impacts

Same as Mitigation Measure TR-1.1, described above.

Impact TR-6: Result in Inadequate Parking Capacity (No Impact)

Adequate parking capacity would be available at the project site. No impact would occur.

Impact TR-7: Conflict with Adopted Policies Supporting Alternative Transportation (No Impact)

The proposed project would not conflict with any adopted programs or policies associated with alternative transportation. There would be no impact.

3.17 Utilities and Service Systems

Affected Environment

The SJ/SC WPCP is a wastewater treatment facility located in Alviso, California, at the southern end of the San Francisco Bay. It is jointly owned by Santa Clara and San Jose and provides service to the cities of Santa Clara, San Jose, and Milpitas, the West Valley Sanitation District (serving Campbell, Los Gatos, Monte Sereno, Saratoga, and unincorporated areas in the westerly part of the valley), the Cupertino Sanitary District (serving Cupertino and unincorporated areas in the east valley), and the Sunol Sanitary District and Burbank Sanitary District (serving unincorporated parts of the central area) (City of Santa Clara 2007).

Built in 1956, the SJ/SC WPCP has the capacity to treat 167 MGD. Peak flows of wastewater from 1998-1999 were 120 MGD (City of Santa Clara 2007). In 1964, the SJ/SC WPCP upgraded its facilities to allow for a secondary treatment process. The Plant upgraded its wastewater treatment process to an advanced, tertiary system in 1979 (City of San Jose 2007b). This treatment process removes potential contaminants by destroying bacteria through a filtering and disinfecting process.

Post-treatment water is either released into Artesian Slough and out into the San Francisco Bay or is recycled through South Bay Water Recycling pipelines. Only about 10% of water is recycled and is used for non-potable purposes only, including park and golf course maintenance, landscaping, agriculture irrigation, and industrial needs (City of San Jose 2007b).

The nearest solid waste disposal facility to the SJ/SC WPCP is the ZRRROL, located at 705 Los Esteros Road. ZRRROL has been conducting landfill and materials processing since 1985. It currently recycles concrete rubble, wood waste, yard waste, clean and mixed demolition debris, cardboard, gypsum, soil, metal and bulky items; and recycled construction and demolition (C&D) debris, wood waste, and green waste (Zanker Materials Recovery and Landfill 2009). As of August 2005, there was approximately 700,000 cubic yards of remaining landfill space available for refuse disposal at the ZRRROL (CIWMB 2007). The

rate at which the landfill is filled varies over time and is based on the daily landfilling rate, which depends on the amount of material received, the amount of this material that can be recycled as a part of resource recovery operations, markets for the recovered materials (which also affects the amount of residue), the volume of the residual material, and the amount of any residual materials hauled off-site. At an average anticipated daily fill rate of 70-100 cubic yards, on-site refuse disposal operations could continue for approximately 6,300 to 9,300 operating days, or approximately 17 to 25 years.

Environmental Consequences

Criteria used for determining the significance of utilities and service systems impact are based on the State CEQA Guidelines and professional standards and practices. Impacts were considered significant if the proposed project would:

- exceed wastewater treatment requirements of the applicable RWQCB;
- 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;
- require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- require new or expanded entitlements to supply water to the proposed project;
- exceed capacity of the wastewater treatment provider that serves or may serve the project;
- exceed the permitted capacity of the landfill that would accommodate the project's solid waste disposal needs; or
- conflict with federal, state, and local statutes and regulations related to solid waste.

In this document, these criteria are also being used to assess potential impacts under NEPA.

Impact UTIL-1: Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board (No Impact)

The proposed project would not exceed the waste discharge permit requirements for the SJ/SC WPCP, but rather would divert treated secondary effluent from the plant and treat it to a higher standard before blending with existing recycled water supplies in the SBWR system. This would effectively reduce the amount of treated effluent that would discharge to the Bay, which would in turn help the RWQCB to meet its water quality objectives. No impact would occur.

Impact UTIL-2: Require or Result in the Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities (No Impact)

The project is itself an expansion of an existing wastewater treatment facility. As such, it would not result in any adverse environmental impacts outside of those addressed in this environmental analysis/initial study. There would be no impact.

Impact UTIL-3: Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities (No Impact)

The project site is located within a developed area, with developed stormwater drainage facilities in place. The proposed project would not require or result in the construction of new community stormwater drainage facilities or expansion of existing community facilities. Consequently, there would be no impact.

Impact UTIL-4: Need New or Expanded Water Supply Entitlements (No Impact)

The proposed project would take secondary effluent from the SJ/SC WPCP and treat it to a higher standard before blending it with existing recycled water supplies in the SBWR system. Water from existing, new, or expanded entitlements would not be required during this process. Therefore, there would be no impact.

Impact UTIL-5: Exceed Wastewater Treatment Capacity (No Impact)

The project would not create additional demand for wastewater services; rather, the project would serve to expand existing recycled water operations at the SJ/SC WPCP and would assist the City in meeting future demands for recycled water within the SBWR service area. Therefore, there would be no impact.

Impact UTIL-6: Be Served by a Landfill with Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs (Less than Significant)

The proposed project would generate construction-related solid waste. There is sufficient landfill capacity for this waste at the Zanker Road Landfill (CIWMB 2007). This impact is less than significant, and no mitigation is required.

Impact UTIL-7: Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste (No Impact)

The proposed project would generate construction-related solid waste. The construction contractor would be required to properly dispose of all construction-related solid waste at appropriate disposal facilities and in compliance with applicable CIWMB and local regulations. There would be no impact.

3.18 Socioeconomics and Environmental Justice

Affected Environment

The Council on Environmental Quality (CEQ) regulations for implementation of NEPA define the “effects” of a given project to include, among other things, economic and social effects, whether direct, indirect, or cumulative (40 CFR Parts 1500–1508). Therefore, in order to address the economic and social effects of the proposed action, the following sources were used to obtain information on regional and project-level socioeconomic characteristics.

- 2000 U.S. Census (U.S. Census Bureau 2000a and 2000b)
- Association of Bay Area Governments Projections (Association of Bay Area Governments 2009)
- State of California Employment Development Department Labor Statistics (State of California, Employment Development Department 2009)

Race and Ethnicity

In general, San Jose is more racially diverse than the County and state. Due to the large numbers of Hispanic/Latinos and Asians residing in the City, the percentage of minority populations in San Jose is higher overall than at County and state levels.

Based on information from the 2000 U.S. Census, the percentage of minority populations residing in the project vicinity is lower than that of San Jose. However, the number of Hispanic/Latinos residing in the project vicinity is proportionately higher than in the state, county or San Jose. Table 3-21 below provides a breakdown, by race, of the census tract that occurs in the project vicinity.

Table 3-21 below provides a breakdown, by race, of City, County, state and tract populations.

Table 3-21. City, County, State, and Tract Race Characteristics

Population	Total Population	Race (Percentage)							
		White	Black/African American	American Indian/Alaska Native	Asian	Native Hawaiian/Pacific Islander	Some other race	Two or more races	Hispanic or Latino (any race)
California	38,292,687	59.5%	6.7%	1.0%	10.9%	0.3%	16.8%	4.7%	32.4%
Santa Clara Co.	1,763,000	53.8%	2.8%	0.7%	25.6%	0.3%	12.1%	4.7%	24.0%
San Jose	943,300	47.5%	3.5%	0.8%	26.9%	0.4%	15.9%	5.0%	30.2%
Tract 5046.02	2,234	17.5%	0.6%	1.0%	3.3%	0.3%	0%	1.8%	75.3%

Source: Department of Finance 2009; U.S. Census Bureau 2000a.

Employment

San Jose has a resident civilian labor force of about 469,100 people, which is 50% of the total population of San Jose (Employment Development Department 2006; U. S. Census Bureau 2009). Because of the large number of employment opportunities and the diversity of skill levels in the city's industries and services, unemployment in San Jose has historically been low relative to California as a whole. However, in recent years, due to the higher rates of unemployment associated with the current economic downturn, San Jose's unemployment rate has outpaced that of both the County and state. As of April 2009, unemployment in the City of San Jose stood at 12 percent, compared to 10.8 percent within the county and 10.9 percent statewide (State of California, Employment Development Department 2009).

According to ABAG, the nine-county Bay Area will add nearly a million new jobs over the next 15 years. Approximately 60% of the jobs will be in the services sector (business and professional, health and recreation, social and personal); 14% will be in the manufacturing and wholesale sector; 10% will be in retail; and the remaining 16% will include a variety of professional and other jobs (Association of Bay Area Governments 2009).

Between 2005 and 2025, Santa Clara County is projected to create approximately 310,980 new jobs, with service jobs accounting for the largest percentage of new jobs in the County. During the same time period, jobs in San Jose are projected to increase from 348,960 in 2005 to 508,145 in 2025, representing an addition of 159,185 new jobs, an increase of 31% (Association of Bay Area Governments 2009).

In most Santa Clara County jurisdictions, housing production is not expected to keep pace with the development of jobs. As a result, most communities in the County will have jobs/housing imbalances, which translates into major housing shortfalls. Essentially, not enough housing units will be built to house new workers filling the additional 310,980 jobs that will be created in Santa Clara County over the next two decades. However, because the number of jobs and housing units is so high in San Jose relative to the County, the jobs/housing ratio in San Jose expected to be less disparate over the long term than in other less “balanced” communities (Association of Bay Area Governments 2007).

Environmental Justice

Executive Order 12898 (EO 12898) requires federal agencies to identify and address adverse human health or environmental effects of federal programs, policies, and activities on minority and low-income populations. Additional guidance from the President’s Council on Environmental Quality (1997) clarifies that environmental justice concerns may arise from effects on the natural or physical environment that produce human health or ecological outcomes, or from adverse social or economic changes.

The EPA’s guidelines for incorporating environmental justice concerns into NEPA analyses identify an area with a minority population as one where the minority population constitutes more than 50% of the area’s total population, or is “meaningfully greater” than the percentage in the surrounding region (e.g., census tract compared to city, city compared to county). A minority is defined as referring to the following population groups: American Indian/Alaskan Native, Asian or Pacific Islander, Black (non-Hispanic), and Hispanic (U.S. Environmental Protection Agency 1998). The federal government considers race and Hispanic or Latino origin to be separate, distinct concepts (U.S. Census Bureau 2000a).

The EPA identifies an area as low-income if the low-income population is more than 50% of the area’s total population, or is “meaningfully greater” than the percentage of low-income residents in the surrounding region. Low-income refers to households with an income below the federal poverty level (U.S. Environmental Protection Agency 1998).

As guided by the above criteria, this section uses demographic information on race and poverty to determine whether any group of people in the project vicinity, including any racial, ethnic, or socioeconomic group, would bear a disproportionate share of adverse environmental effects from the proposed action.

Poverty, income, and racial characteristics occurring statewide, regionally, and within the vicinity of the project area are shown in Table 3-22. Based on this information, the project area vicinity has a lower median household income and a slightly lower percentage of people living below the poverty line than either the County or the City of San Jose. The median household income in Santa Clara

County and San Jose is \$74,335 and \$70,243, respectively, whereas the project area's median household income is \$57,589.

Table 3-22. Income, Poverty, and Race Characteristics

Population (Jurisdiction/ Census Tract)	Median Household Income	Persons in Poverty (Percentage)	Minority Population (Percentage)
California	47,493	14.2%	40.5%
Santa Clara Co.	74,335	7.5%	46.2%
San Jose	70,243	8.8%	52.5%
CT 5046.02	57,589	7.1%	82.5 %

Source: U.S. Census Bureau 2000a, 2000b.

As shown in Table 3-22, the project area has a substantially higher proportion of minorities than in the state or County. Minorities represent approximately 52.5 percent of the total population of San Jose, but represent approximately 83 percent of the project area population. Of this minority group that resides within the project area, approximately 75 percent in the Census Tract is Hispanic/Latino.

In almost every demographic category analyzed for environmental justice issues, the population of the project area had percentages equal to or higher than the City as a whole. Compared to the San Jose, for example, the project area has a proportionately higher percentage of minorities, a lower median household income, and a higher number of people living below the poverty line. Therefore, based upon the demographic information collected and reported in Table 3-22, the project area meets the EPA's criteria for a population where the minority population constitutes more than 50% of the area's total population, as well as the environmental justice criteria under Executive Order 12898.

Environmental Consequences

Criteria used for determining the significance of socioeconomic and environmental justice impacts are based on based on EO 12898 and CEQ's NEPA regulations. Because CEQA does not identify social and economic effects as significant, NEPA regulations were used to determine potential effects. Impacts were considered significant if the proposed project would:

- Change local employment opportunities; or
- Disproportionately affect minority communities or low-income communities.

Impact SOC/EJ-1: Change Local Employment Opportunities (Less than Significant)

The proposed project would affect temporary, short-term employment during construction through the employment of construction workers. Once installed, operation of the ARWTF would generate a few permanent jobs, because a small dedicated staff would be required to operate and maintain and operate the facility. However, neither construction nor operation of the proposed facility would have a potential employment impact on the labor market countywide, because of the temporary nature of construction and the small number of staff required to operate the facility. Additionally, neither construction nor operation of the proposed recycled water treatment facility would involve the displacement of existing employment-generating businesses or the establishment of new employment-generating businesses.

Expenditures by project-related employees would be limited to the period of short-term construction. Thus, induced employment generated by the project, including the handling of consumer goods and services provided, would likely have little measurable effect on the local economy. Furthermore, due to the large size of the surrounding urban community, consumer goods and services are readily available in a number of places outside of the project area; therefore, the project is expected to have a less-than-significant socioeconomic effect on employment. No mitigation is required.

Impact SOC/EJ-2: Disproportionately affect minority communities or low-income communities (Less than Significant)

Although the population residing in the project vicinity can be characterized as a population fitting the standard criteria for consideration of environmental justice impacts, the proposed action would not result in significant adverse human health or environmental effects over the long-term. By increasing the treatment capacity of the existing SBWR system and providing higher quality recycled water to end users within the SBWR service areas, the project would have beneficial effects in the project area and vicinity. The proposed action could potentially result in short-term adverse environmental affects during the construction phase. However, with implementation of project mitigation measures in addition to the District's BMPs described under *Best Management Practices* in Chapter 2, impacts to human health or the environment due to construction would be less than significant. No mitigation is required.

3.19 Indian Trust Assets

Affected Environment

Indian trust assets (ITAs) are legal interests in assets held in trust by the federal government for Indian tribes or individual Indians. The trust relationship usually stems from a treaty, executive order, or act of Congress. ITAs are anything that holds monetary value, which can include real property, physical assets, or intangible property rights. Examples of trust assets are lands, minerals, hunting and fishing rights, and water rights.

Reclamation's ITA policy states that it will carry out its activities in a manner that protects ITAs and avoids adverse impacts when possible. When Reclamation cannot avoid adverse impacts, it will provide appropriate mitigation or compensation.

There are no ITAs in the vicinity of the proposed project. The nearest ITA to the project area is the Lytton Rancheria, which lies approximately 42 miles northwest of the project area.

Environmental Consequences

Although CEQA does not expressly require the application of significance criteria for potential impacts to ITAs, NEPA requires the evaluation of potential impacts to ITAs as a distinct category. Therefore, impacts of the proposed project were evaluated with respect to its potential to change a natural or environmental resource related to tribal trust values. Specifically, the proposed project would have a significant impact if it would result in an adverse change in the value, use, quantity, quality, or enjoyment of any ITAs.

Impact ITA-1: Adverse Change in the Value, Use, Quantity, Quality, or Enjoyment of Indian Trust Assets (No Impact)

Because there are no ITAs in or near the project area, no impacts on ITAs are expected from construction-related activities.

3.20 Energy Resources

Affected Environment

State Overview

Supply

California's electricity is supplied by a number of energy-producing sources, including natural gas (41 percent), coal (21 percent), large hydroelectric plants (15 percent), and nuclear (13 percent) (CEC, 2005). The remaining 10 percent is supplied from geothermal, biomass, small hydroelectric, wind, and solar sources. Natural gas usage has risen from 30 percent in 1999 to 36 percent in 2002 to 41 percent in 2004. Electricity generation accounted for 50 percent of the natural gas usage in 2004.

Use and Growth in Demand

While per capita electricity consumption in the United States increased by nearly 50 percent over the past 30 years, California's per capita electricity consumption within the same period has remained approximately unchanged (CEC, 2005). From 2001 to 2004, electricity consumption in California grew from 250,241 gigawatt hours (GWh) to 270,927 GWh. Electricity use is forecast to grow between 1.2 and 1.5 percent annually, from 270,927 GWh in 2004 to between 310,716 and 323,372 GWh by the end of 2016. Population increase is the key cause of increased electricity consumption due to increased residential and commercial demand and in turn increased demand from water pumping and other public services. In 2005, the Department of Finance (DOF) projected annual population growth at 1.2 percent based upon lower immigration and fertility assumptions than the 1998 DOF forecast. Another key driver of California's energy demand is personal income (CEC, 2005). Primary reasons for the increased electricity consumption between 2001 and 2004 included a shorter, milder recession than was projected in the 2003 DOF forecast and diminished voluntary, consumer conservation efforts compared to those achieved during the 2000 to 2001 energy crisis.

Efficiency

In California, efforts to increase efficiency via evolving appliance and building standards and enhancements in efficiency programs have reduced peak capacity needs by more than 12,000 megawatts (MW) and continue to save about 40,000 GWh⁷ per year of electricity. Despite improvements in power plant licensing, energy efficiency programs, and continued technological advances, development of new energy supplies is not keeping pace with the state's increasing electricity

⁷ GW-h - A unit of power equal to one billion watts.

demand (CEC, 2005). Transmission lines frequently run at capacity, forcing system operators to reduce generation to avoid overloading the system, and transmission line outages sometimes result in rolling blackouts. In addition, the development of new renewable resources has been slower than anticipated, due in part to the state's approval process.

In September 2004, the California Public Utilities Commission (CPUC) adopted aggressive energy savings goals for electricity. In achieving these targets, the State will save an additional 5,000 MW and 23,000 GWh per year of electricity by 2013.

Regional Overview

Electricity Generation and Use

Pacific Gas and Electric's (PG&E's) natural gas and electricity distribution network extends through 47 of California's 58 counties, comprising most of northern and central California. The utility currently provides power to the SJ/SC WPCP via overhead power lines.

PG&E serves approximately 5.1 million electricity distribution customers (PG&E 2008). Its power generation portfolio includes two nuclear power reactor units at the Diablo Canyon power plant with a total capacity of approximately 2,240 MW of electricity; two conventional fossil fuel units at the Humboldt Bay power plant, which currently produce 105 MW of combined output; a hydroelectric system, which consists of 110 generating units with a total generating capacity of 3,896 MW; 2,500 megawatts from cogeneration projects, 600 MW from wind projects, and 800 MW from projects with other fuel sources, including biomass, waste-to-energy, geothermal, solar, and California-eligible hydroelectric facilities.⁸ Total electricity consumption by PG&E customers in 2007 amounted to 85,057 million kilowatt-hours (kWh) (CEC 2009).

Regulatory Framework

Federal

The National Energy Policy

The National Energy Policy, established in 2001 by the National Energy Policy Development Group is designed to help the private sector and state and local governments promote dependable, affordable, and environmentally sound production and distribution of energy for the future. Key issues addressed by the energy policy are energy conservation, repair, and expansion of energy infrastructure, and ways of increasing energy supplies while protecting the environment.

⁸ As defined in Senate Bill 1078, hydroelectric facilities qualify as eligible renewable resources if they have a capacity rating of 30 MW or less.

State

California 2008 Energy Action Plan Update

The 2008 update to the 2005 *Energy Action Plan II* is the state's principal energy planning and policy document (State of California 2008). The updated document examines the state's ongoing actions in the context of global climate change. The 2005 *Energy Action Plan II* continues the goals of the original 2003 *Energy Action Plan*, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy resources are adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first-priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy demand and transmission capacity needs, clean and efficient fossil-fired generation is supported. The *California 2008 Energy Action Plan Update* examines policy changes in the areas of energy efficiency, demand response, renewable energy, electricity reliability and infrastructure, electricity market structure, natural gas supply and infrastructure, research and development, and climate change.

Building Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6, of the CCR, were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The most recently updated version of the standards was adopted on April 23, 2008 and go into effect August 1, 2009.

Compliance with these standards is mandatory when new building permits are issued by City and County governments. These standards also promote cost-effective means to reduce energy use for new development relative to business-as-usual-conditions. California's building efficiency standards (including standards for energy-efficient appliances) have saved more than \$56 billion in electricity and natural gas costs since 1978 (CEC, 2009). It is estimated that an additional \$23 billion will be saved by 2013.

In addition, amendments to Title 24 called the "Green Building" standards are currently in the rulemaking process. These largely voluntary standards would encourage building techniques that would substantially reduce energy consumption and water use below Title 24 standards.

California Senate Bill 1078/Senate Bill 107 – Renewable Portfolio Standard

Established in 2002 under SB 1078 (Chapter 516, Statutes of 2002) and accelerated in 2006 under SB 107 (Chapter 464, Statutes of 2006), California's

renewable portfolio standard obligates investor-owned utilities, energy service providers and community choice aggregators to procure at least 20 percent of retail sales per year from eligible renewable sources by 2010 instead of 2017. The CPUC and California Energy Commission (CEC) are jointly responsible for implementing the program.

This legislation created no obligation for local land authorities. However, to meet the requirements of SB 1078/SB 107, additional renewable energy projects and transmission line connections will be necessary and local land use planning processes can facilitate or hinder the ability of energy providers to establish these additional facilities. Further, to meet GHG reduction goals of a particular jurisdiction, the ability of energy providers to increase their renewable energy portfolios is directly related to the ability of the jurisdiction to reduce GHGs associated with electricity consumption.

California Senate Bill 1037 and Assembly Bill 2021

In 2003, the CPUC and CEC adopted an Energy Action Plan that prioritized resources for meeting California's future energy needs, with energy efficiency being first in the "loading order," or highest priority. Since then, this policy goal has been codified as SB 1037 and AB 2021 into statute through legislation that requires electric utilities to meet their resource needs first with energy efficiency.⁹ This policy also set new targets for statewide annual energy demand reductions of 32,000 GWh and 800 million therms from business as usual¹⁰—enough to power more than 5 million homes or replace the need to build about 10 new large power plants (500 MW each). These targets represent a higher goal than existing efficiency targets established by CPUC for investor-owned utilities due to the inclusion of innovative strategies above traditional utility programs. Achieving the state's energy efficiency targets will require coordinated efforts from the State, the federal government, energy companies, and customers. The ARB will work with CEC and CPUC to facilitate these partnerships. California's energy efficiency programs for buildings and appliances have generated more than \$50 billion in savings over the past three decades.

California Assembly Bill 32 – Global Warming Solutions Act of 2006

AB 32 requires California to reduce its total GHGs to 1990 levels by 2020, which represents about a 30 percent reduction from current levels. In September 2007, the ARB approved a list of nine Discrete Early Actions to reduce GHGs and is currently in the process of developing regulations and programs based on these actions, which must be adopted and in effect by January 1, 2010 (HSC §38560.5 (b)).

ARB's Discrete Early Actions include maximizing energy efficiency building and appliance standards, pursuing additional efficiency efforts, including new technologies and new policy and implementation mechanisms, and pursuing

⁹ SB 1037 (Kehoe, Chapter 366, Statutes of 2005) and AB 2021 (Levine, Chapter 734, Statutes of 2006) directed electricity corporations subject to CPUC's authority and publicly-owned electricity utilities to first meet their unmet resource needs through all available energy efficiency and demand response resources that are cost effective, reliable, and feasible.

¹⁰ The savings targeted here are additional to savings currently assumed to be incorporated in CEC's 2007 demand forecasts. However, CEC has initiated a public process to better determine the quantity of energy savings from standards, utility programs, and market effects that are embedded in the baseline demand forecast.

comparable investment in energy efficiency by all retail providers of electricity in California (including both investor-owned and publicly owned utilities).

Environmental Consequences

The City of San Jose and County of Santa Clara have not formally adopted significance standards for effects related to energy resources but generally consider that implementation of a proposed project would have an adverse energy resource effect if it were to:

- Encourage activities that result in the use of large amounts of fuel, natural gas, or electricity, or use of these in a wasteful manner.

Impact ENR-1: Encourage excessive or Wasteful Use of Fuel, Natural Gas, or Electricity (Less than Significant)

Construction

Construction of the proposed project would require the use of fuels¹¹ primarily in the form of gasoline, diesel, and motor oil for a variety of construction activities, including excavation, grading, and vehicle travel on site during construction that could result in increased energy use and/or wasteful use of fuels. However, wasteful use of fuels during construction would not be economical for the District or its contractors. Additionally, commuting construction worker trips to the project sites would be an added source of fuel consumption. A maximum of 50 workers would commute to the site daily, as stated above (refer to Section 3.16, *Traffic and Transportation*, for an analysis of worker trips associated with project construction). GHG reduction actions would be implemented as part of the proposed project to reduce GHGs (see Section 3.4, *Air Quality*); these actions include requiring all contractors to maintain tire inflation to the manufacturers' specifications to improve fuel efficiency, implementing specific actions that limit idling time, and construction worker education programs to ensure that fuels are not used in a wasteful manner..

With the short-term period of construction activities and implementation of the energy resources efficiency standards that are specified in the GHG reduction actions, as well as the proposed ARB measures described above, construction of the proposed project would not cause wasteful use of fuel, or encourage use of large amounts of energy resources. Therefore, energy use during project construction would be less than significant. No mitigation is required.

Operation

Once operational, annual electricity consumption by the ARWTF would depend on the total combined capacity of the MF/UF, RO, UV, and decarbonation processes, which together would comprise the largest draw on energy resources. For the purposes of evaluation in this EA/IS-MND, the MF/UF and UV systems

¹¹ Fuels are combustible substances that provide energy.

are assumed to have a peak production capacity of 10 MGD, while the RO system would have a peak capacity of 8 MGD. The Decarbonation system would consist of a tower and blower component with duty-specific design capacities. Depending on the seasonal recycled water demand, annual electricity consumption would be approximately 6.3 million kWh, as shown in Table 3-23 below.

Table 3-23. Annual Electricity Consumption Based on an RO System Capacity of 8 MGD

System	Capacity	Summer (kWh)	Winter (kWh)	Annual Total (kWh)
MF/UF	10 MGD	681,169	463,994	1,145,163
RO	8 MGD	2,490,877	428,217	2,919,094
Decarbonation	Tower: 1,850-2,800 GPM	137,316	21,776	159,092
	Blower: 8,325 CFM			
UV	10 MGD	1,396,251	66,4257	2,060,508
Total		4,705,612	1,578,244	6,283,856

Source: Zhu pers. comm

As noted above, PG&E provided approximately 85,057 million kilowatt-hours of electricity to its customers in 2007, which serves as a reasonable baseline for current electricity demand. Assuming a similar level of demand would occur into the foreseeable future, the ARWTF would consume 0.00007 percent of this total. In addition, the project would reduce, by some unestimated amount, energy usage associated with pumping, conveying, and treating the potable water that the ARWTF would replace, and design of the ARWTF would incorporate energy efficient lighting fixtures, including T8-type fluorescent light fixtures for building interiors and low pressure sodium lamps equipped with photocells for outdoor lighting. Thus, increases in energy consumption associated with the proposed project would be extremely minor relative to total electricity demand.

With the project's comparatively small demand on PG&E's electrical resources; reduction in energy use associated with potable water pumping, conveyance, and treatment; and the incorporation of energy efficient lighting into project design, the proposed project would have a less-than-significant impact on energy use during project operation. No mitigation is required.

Chapter 4

Analysis of Alternatives

Chapter 4

Analysis of Alternatives

4.1 Introduction

This chapter describes those aspects of the environment that could or would be affected by the project alternatives, as well as any potential direct and indirect impacts that may result from implementation of the alternatives. Key differences between the project alternatives and the proposed action are discussed in the following section and evaluated in further detail below.

4.2 No Action/No Project Alternative

Under the No Action/No Project Alternative, no ARWTF would be constructed and none of the impacts or benefits described in the previous section would occur. This alternative would not expand the District's existing recycled water service and thus would not help to fulfill both the District's and the City's objective of expanding the SBWR system to account for 5% of the total water supply by 2010 and 10% of the total water supply by 2020. Additionally, this alternative would not meet the project objectives such as increasing reliability, quality, and marketability of the recycled water supply, maximizing water reuse alternatives, and reducing effluent discharges into San Francisco Bay.

Although the current SJ/SC WPCP would continue to divert treated effluent to the SBWR system, concerns over the salinity content of system water would continue to constrain current end uses within the District's service area. TDS levels from SJ/SC WPCP tertiary effluents would likely remain consistently above the secondary drinking water standard of 500 mg/L for TDS as under current conditions. Consequently, the quality of recycled water available for irrigation, landscaping, and other uses would not improve and could potentially have adverse effects on soil permeability, vegetation, and groundwater quality. The range of uses available for recycled water would also remain unchanged; thus, demand for potable water would not be expected lessen over the long-term, and the need to augment existing potable water supplies would continue to be a regional challenge. There would also be no reduction in the current WPCP waste discharge stream and, accordingly, no reduction in the level of pollutants that are currently discharged to San Francisco Bay.

In summary, the No Action/No Project Alternative would not meet the purpose, objectives, or needs of the proposed action, as outlined in Chapter 1, *Purpose and Need for Action*, and none of the adverse effects or benefits described in the previous section would occur. Although development of the property could and likely would occur at some point in the future, the changes associated with this development are too speculative to be predicted with any specificity at this time and cannot be reasonably evaluated under the No Action/No Project Alternative in this EA/IS-MND.

4.3 North Site Alternative

Under this alternative, the ARWTF would be designed and constructed as described for the proposed action. However, the facility would be located approximately 50 feet north of the proposed site and northeast of the SBWR TPS. Because the alternative site is in close proximity to the proposed site and the sites are similar, the affected environment and/or environmental consequences associated with some resource areas under this alternative are identical in comparison to the proposed action and therefore are not discussed further in this EA/IS-MND. Where differences in the affected environment exist, or where different environmental consequences would result from this alternative, they are discussed by resource in the following section. If necessary, mitigation measures are identified to reduce environmental impacts in order to comply with CEQA. All mitigation measures identified in these documents would be incorporated into the Proposed Action.

The following topic areas are not discussed because the environmental consequences would be essentially identical to the Proposed Action:

- Aesthetics;
- Air Quality;
- Biological Resources;
- Geology and Soils;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Mineral Resources;
- Noise;
- Population and Housing;
- Public Services;
- Recreation;
- Transportation/Traffic;
- Utilities and Service Systems;

- Socioeconomics and Environmental Justice;
- Indian Trust Assets; and
- Energy Resources.

The following is an analysis of environmental effects, by resource topic, that would occur under the North Site Alternative.

Agricultural Resources

The alternative site is currently classified as Urban and Built Up Land under the Department of Conservation's (DOC's) Farmland Mapping and Monitoring Program (FMMP) (California Department of Conservation 2006). Although this differs from the Grazing Land designation for the proposed site, this alternative would be similar to the proposed action in that it would not convert Important Farmland under the Farmland Mapping and Monitoring Program.

The site is currently zoned "Agricultural (A)" in the San Jose Zoning Ordinance (City of San Jose 2009a). However, there is pending rezoning of the parcel that contains both the north and south sites (APN# 015-31-063). Under this rezoning, the northern site would be zoned as "Light Industrial (LI)." Because this zoning is pending future discretionary action by the City, the outcome of which is uncertain, project effects on agricultural zoning must be considered in light of two possible scenarios: 1) the project site is rezoned "Light Industrial" at a future date, or 2) the project is not rezoned and remains an Agricultural District under the City's Zoning Ordinance.

Under the first scenario, rezoning of the site as "Light Industrial" would remove the agricultural zoning restrictions currently on the site; thus, no potential conflicts with agricultural zoning would occur.

Under the second scenario, the alternative site would remain a zoned Agricultural District; however, the proposed facility is considered an allowed use under the City's Zoning Ordinance, as it falls under the category of "Utility facilities, excluding corporation yards, storage or repair yards and warehouses" (City of San Jose 2009a). As such, this alternative would not conflict with existing zoning for agricultural use, nor would it conflict with a Williamson Act contract or otherwise convert farmland to a non-agricultural use. There would be no new significant environmental effects as a result of this alternative.

Cultural Resources

Archaeological Resources

The alternative site is 50 feet north of the proposed project site. Archaeological site CA-SCL-528 is recorded adjacent to the proposed project site. No other

archaeological resources are recorded within the project area, nor were any observed during initial surveys.

ICF Jones & Stokes completed archaeological test excavations in portions of the project's APE in accordance with a Reclamation-approved XPI Work Plan during November 2009. In total, six trenches were excavated on the alternative site to determine the presence or absence of, and potential for, buried archaeological sites. These trenches consistently contained very dense, compact gray clays with a layer of calcium carbonate. Small roots were present down to almost three meters, and dark yellowish brown silty clay below that. No sand layers were ever observed on the site.

It is therefore not anticipated that implementing the North Site Alternative would cause a substantial adverse change in the significance of NRHP or CRHR-eligible resources. However, the potential exists that buried archaeological resources are present in the project area. Although unanticipated, there also is always the possibility that Native American remains may be unearthed. However, with implementation of the District's BMPs for cultural resource protection and Mitigation Measure CR-1.1, impacts on buried archaeological resources would be reduced to a less-than-significant-level.

Architectural Resources

No architectural resources meeting the criteria for listing in the CRHR or the NRHP are present on the alternative site. Therefore, there would be no new significant environmental effects as a result of this alternative.

Land Use and Planning

The alternative site is not located in a developed area such that the ARWTF would physically divide an established community, nor would this alternative be implemented under an applicable HCP or NCCP.

As described above in "Agricultural Resources," this alternative would not conflict with the pending rezoning of the alternative site to Light Industrial (LI) or with the existing Agricultural (A) zoning under the San Jose Zoning Ordinance (City of San Jose 2009a). Although the project is technically subject to a conditional use permit under either the Agricultural (A) or Light Industrial (LI) zoning designations, the District, as a public agency, is considered exempt from this requirement and would not need to obtain such a permit from the City. As such, there would be no new significant environmental effects as a result of this alternative.

Chapter 5

Other Required Analyses

Chapter 5

Other Required Analyses

5.1 Unavoidable Adverse Impacts

CEQA requires that lead agencies disclose any unavoidable adverse impacts of their project. Implementation of the proposed project would not result in any unavoidable adverse impacts on the physical, biological, or social and economic environment.

5.2 Irreversible and Irretrievable Commitments of Resources

Under NEPA, federal lead agencies must disclose any commitments of resources associated with the proposed action that may be irreversible or irretrievable.

Implementation of the ARWTF would require irretrievable commitment of fuels, petroleum, and electricity to support the construction, operation, and maintenance of the facility.

5.3 Short-Term Uses versus Long-Term Productivity

Conversion of the land to an industrial use represents a short-term action that would have a long-term effect on the productivity of the land. Although the proposed project would require the development of over 5 acres of currently unused land as well the irreversible and irretrievable commitment of resources during facility construction, it is anticipated that these short-term effects would be substantially off-set by the long-term gains of expanding the District's existing recycled water service; increasing the reliability, quality, and marketability of the recycled water supply, maximizing water reuse alternatives, and reducing effluent discharges into San Francisco Bay.

5.4 Growth-Inducing Impacts

Requirements in CEQA and NEPA

A project may be growth-inducing if it directly or indirectly fosters economic or population growth or the construction of additional housing, removes obstacles to population growth or taxes community services to the extent that the construction of new facilities would be necessary, or encourages or facilitates other activities that cause significant environmental effects.

Section 21100(b)(5) of CEQA requires an IS to discuss how a proposed project, if implemented, may induce growth and the impacts of that induced growth (State CEQA Guidelines Section 15126). CEQA requires the IS to specifically discuss “the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment” (State CEQA Guidelines Section 15126.2(d)).

Section 15126.2 of the CEQA Guidelines states specifically that “It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.” In other words, growth inducement is not to be considered bad per se; mitigation for impacts on resources resulting from growth may be too far removed from the actions of the lead agency to require mitigation by that agency. The goal of the IS in this regard is disclosure.

In addition, under authority of NEPA, CEQ NEPA Regulations require EAs to consider the potential indirect impacts of a proposed action. The indirect effects of an action include those that occur later in time or farther away in distance, but are still reasonably foreseeable (CEQ NEPA Regulations, Section 1508.8(b)).

Impacts on Growth

Growth-Inducing Potential

To assess whether the ARWTF would induce growth, it must be determined how, where, and under what circumstances growth-inducing effects would occur. To make this determination, this section studies the role of the proposed project, changes in recycled water quality, and effects on growth that would potentially result from project implementation.

Role of the ARWTF in the SBWR System

As noted in Chapter 2, *Alternatives, Including the Proposed Action*, the ARWTF would be capable of producing up to 10 MGD of recycled water at peak capacity. However, it should be noted that the facility would not serve to increase the supply of recycled water in the SBWR system; the supply would be governed as

it is currently by the SBWR TPS, which provides pumping capacity in direct response to system demand. Currently, the TPS has a maximum pumping capacity of 40 MGD under normal operating conditions and 48 MGD with all duty and standby pumps fully operational, and it is expected that the capacity of the TPS will not change in the foreseeable future.

In effect, the ARWTF would add additional treatment capacity and would blend higher quality recycled water with filtered effluent from SJ/SC WPCP in order to meet the District's target TDS concentration of 500 mg/L. As a result, it would provide a higher quality end product; however, it would not increase the total recycled water supply for the reasons stated above.

Change in Quality of Recycled Water and Effects on Growth

Although the ARWTF would not add additional pumping capacity and therefore would not serve to increase the available supply of recycled water, it could indirectly foster urban growth if the increased quality of recycled water attracted new or existing customers that would otherwise use potable water. This would effectively free up supplies of potable water; however, making a connection between changes in the quality of recycled water and growth patterns is rather speculative. Furthermore, it is uncertain how much potable water use may be replaced by implementation of the proposed project. For example, future recycled water customers may well include industrial, irrigation, or other customers who currently make use of other supplies (e.g., groundwater, other surface water sources). In that case, the ARWTF would not be growth inducing as it would not be replacing current potable water use.

Although the effects of the project, through increasing the marketability and quality of recycled water in the SBWR system, are not expected to accommodate or induce growth, some growth could conceivably occur due to changes in the availability of potable water. This growth could result in the conversion of agricultural and other open land to urban uses that may adversely impact agricultural and biological resources (including special-status species and other sensitive resources) at those locations subject to such conversion. In addition this conversion could lead to changes in stormwater runoff quantity and quality, the modification of soils and slopes, and impacts on cultural resources. Increases in population could lead to impacts on air and water quality, traffic and noise conditions, and increases in the demand for such public services as schools, fire, police, sewer, solid waste disposal, and electrical and gas utilities. In addition, the expansion of such services could result in additional adverse impacts.

The environmental effects of future growth in the District's service area have been fully analyzed in other environmental documents, including EIRs related to the City and County general plans. At a project-specific-level, local jurisdictions also have the ability to impose feasible mitigation measures on development that would reduce or eliminate these impacts, but as the location of any new growth cannot reasonably be predicted, estimating the potential for this would also be remote and speculative.

Conclusion

In summary, by increasing the quality and marketability of SBWR system water, the ARWTF would have some potential to attract new recycled water customers, thereby inducing growth. However, it would be speculative to identify specific areas where growth could occur in a particular service area. Even if growth effects were to occur, they would likely be extremely small, especially when compared to other social and economic variables that can influence growth and services. For these reasons, it is not anticipated that the proposed project would have substantial growth-inducing effects.

5.5 Cumulative Effects

The CEQs NEPA regulations (40 CFR 1508.25) require a reasonable analysis of the significant cumulative impacts of a proposed project. *Cumulative impacts* refers to “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.”

The cumulative analysis for the proposed project takes into consideration the other projects ongoing in the same geographic area as the proposed project, as well as planned land uses identified in the County General Plan and policy documents.

The analysis of cumulative effects is largely based on information provided by City of San Jose.

Related, reasonably foreseeable, and other possible future projects (listed below) have been included in this analysis because they are either close to the project area or could affect regional resources. This information represents the most up-to-date information available as of the date of publication of this document.

Current ongoing projects occurring in the same geographic region as the proposed project are shown in Table 5-1.

Table 5-1. Cumulative Projects

Name of Project	Location	Brief Description
South Bay Salt Pond Restoration Project	Along the South San Francisco Bay. There are three main restoration pond areas: 1) Eden Landing near Hayward, 2) Ravenswood near East Palo Alto, and 3) Alviso. The Alviso ponds are closest to the project site.	Restoring 15,100 acres of industrial salt ponds to tidal wetlands and other habitats.

Name of Project	Location	Brief Description
Bayside Market Place Retail/Creekside Landing	At the interchange of I-880 & Dixon Landing Road in the City of Fremont.	Project would extend Fremont Boulevard to Dixon Landing Road and construct a new retail center consisting of approximately 524,000 SF of commercial/ retail uses. The existing 88 acres of wetlands on the site would not be developed.
Zanker Road Resource Recovery (PDC08-042)	705 Los Esteros Road, San José, approx 1,200 ft NWly of intersection w/ Zanker Rd. (APN 015-38-004)	Rezoning to allow continued use of resource recovery after landfill closure on an approximately 70-acre site.
Zanker Road Resource Recovery (PDC08-054)	Between Los Esteros Road & Grant Boulevard in San José 9APN 015-30-071)	Rezoning to allow redesign of a driveway and a wetlands exchange on a 52.5 gross acre site.
San José/Santa Clara Water Pollution Control Plant (WPCP) Master Plan	700 Los Esteros Road, San José	The City is currently in the planning stages for the Water Pollution Control Plant Master Plan, which will address how to rebuild the wastewater treatment facility and use the 2,600-acre property. New land uses could include kayaking, trails, a clean-tech center, and/or jobs-based development.
H09-002 - The Offices at First	110 Holger Way, San Jose at NW/c Headquarters Dr. & Holger Way (APN 097-03-085, 087, 108, 138)	Site Development Permit to allow an additional 200,000 SF to a previously approved 220,000 SF building for office uses, and to allow an additional 78,000 SF to a previously approved 941,000 SF parking structure on a 14.1 gross acre site.
PDC09-004 - Airport West Stadium	1105, 1115, 1125 Coleman Ave. NW & SW corners of Coleman Ave & Newhall Dr (former FMC site) (APN 230-46-055, 062)	Planned Development Rezoning to allow an 18,000-seat professional sports stadium as a permitted use on an approximately 94.8 gross-acre site.
PDC08-061 - Ohlone Mixed Use	860 W. San Carlos St., SW/c West San Carlos St & Sunol St. (APN 264-14-024, 025, 026, 028, 069, 090, 110, 122, 130, 131)	Planned Development Rezoning from HI Heavy Industrial Zoning District to A(PD) Planned Development Zoning District to remove three existing warehouse buildings and allow up to 825 multi-family residences and 50,000 SF of commercial use on a 8.25 gross acre site.

Name of Project	Location	Brief Description
PDC07-071 - Newby Island Landfill	128 Dixon Landing Rd., Wly terminus of Dixon Landing Rd, approx 3000 ft W of I-880 & Dixon Landing Rd (APN 015-40-003, 005; 015-47-001)	Planned Development Rezoning from R-M, HI and A(PD) Zoning District to A(PD) Planned Development Zoning District to allow landfill uses on a 357 gross acres site
Source: Moore pers. comm.		

Analysis of Cumulative Effects

The following topic areas are not discussed because they were determined to have no adverse environmental consequences; therefore, their potential, if any, to contribute considerably to significant cumulative impacts when considered in combination with the effects of other projects would be negligible.

- Aesthetics;
- Geology and Soils;
- Mineral Resources;
- Noise;
- Population and Housing;
- Public Services;
- Recreation;
- Utilities and Service Systems;
- Socioeconomics and Environmental Justice;
- Indian Trust Assets; and
- Energy Resources.

The following provides a discussion of cumulative effects by resource. Based on the analysis below, the project, when considered in combination with the effects of other project, would not contribute to cumulatively considerable effects.

- **Biological Resources.** Construction of the ARWTF could result in the permanent conversion of 4.6 acres of potential burrowing owl foraging and/or breeding habitat to developed uses. Added human presence and increased activity and noise level during construction could also disturb golden eagles, white-tailed kites, other raptor species, and migratory birds at and near the project sites. However, implementation of Mitigation Measures BIO-1.1 through BIO-1.4 and BIO 4.1 through BIO 4.4 would reduce these impacts to a less-than-significant level. Therefore, the proposed project's contribution to biological impacts would not be cumulatively considerable.

- **Cultural Resources.** As described in Section 3.6, *Cultural Resources*, there is a potential to encounter both known and previously unidentified cultural resources during construction of the proposed project. There is also the potential to encounter archeological, historic, and paleontological resources associated with the other cumulative projects listed in Table 5-1. Thus, cumulative impacts on these resources could be potentially significant and the proposed project's contribution could be cumulatively considerable. However, implementation of Mitigation Measures CR-1.1 and CR-3.1, in combination with the District's BMP's for cultural resource protection, would ensure that sensitive archeological resources at the site are avoided. With implementation of this mitigation measure, a cumulatively considerable impact on archaeological resources would not occur.
- **Hazardous Waste and Materials.** Construction of the ARWTF concurrent with other projects outside of the proposed property could increase the risk of exposure (human and environmental) to hazardous materials from the use of construction-related hazardous materials, such as gasoline, oils, and solvents. However, all hazardous materials used during construction would be transported, stored, and handled in a manner consistent with relevant regulations and guidelines. Therefore, the ARWTF's contribution to this impact would not be considerable.

In the long term, the project would include storage and use of additional chemicals for the proposed project at the project site. However, the potential for accidental release as a result of improper storage would be reduced because chemicals would be stored in appropriate secondary containment within reinforced concrete containment areas. Furthermore, materials onsite would be stored, handled, and, if necessary, remediated in according to pre-defined procedures in the HMBP. Therefore the proposed project's contribution to cumulative long-term impact would be less than significant.

The ARWTF would be constructed in an area that is not susceptible to wildland fires that could expose people or structures to risk of loss, injury, or death. As such, the proposed project's contribution to cumulative impacts to fire safety would be negligible.

- **Traffic and Transportation.** Construction of the ARWTF concurrent with other projects within the project area could temporarily increase traffic (from increased construction worker and vehicle trips), result in short-term traffic delays, affect access, and cause potential traffic safety hazards for vehicles. The project's is estimated to generate a daily maximum of 65 trips during the 22-month construction timeframe would be 74 trips. Although these trips would be temporary in nature and would be dispersed throughout the day, project traffic could substantially degrade the level of service at the Zanker Road/SR 237 intersection if it caused significant traffic delays at that intersection. Implementation of Mitigation Measures TR-1.1 and TR-5.1, in combination with the District's traffic control BMPs, would provide for consistent traffic control measures and appropriate timing and routing of haul trips during construction activities. With these measures in place, the proposed project would not significantly contribute to a cumulative impact.

- **Hydrology and Water Quality.** Construction of the ARWTF concurrent with other projects in the project vicinity could result in temporary impacts to hydrology and water quality in the project area. Concurrent construction activities could result in increased erosion and subsequent sedimentation and affect water quality. Additionally, surface water quality could be affected by construction activities that result in the release of fuels or other hazardous materials to stream channels or storm drains, or discharge from excavation dewatering activities.

As described in Section 3.9, Hydrology and Water Quality, the District and/or contractor would be required comply with the City of San Jose's NPDES General Construction Activities Permit through development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would include BMPs to reduce the impact of project construction to less-than-significant levels. As such, the contribution of the proposed project to construction-related hydrology and water quality impacts would not be cumulatively considerable.

During project operation, it is not anticipated that the proposed project would violate the waste discharge requirements specified under the current NPDES permit or violate the water quality objectives; substantially deplete groundwater or interfere with groundwater recharge; or expose people to significant risks associated with flooding, or inundation by seiche, tsunami, or mudflow. As such, there would be no significant contribution to a cumulative impact.

- **Air Quality.** Concurrent construction of the ARWTF with other projects in the project vicinity would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions. As discussed in Section 3.4, *Air Quality*, for construction-related dust impacts, the BAAQMD recommends that significance of the impact be based on a consideration of the control measures to be implemented (BAAQMD, 1999). If appropriate mitigation measures are implemented to control breathable particulate matter emissions, then the impact would be less than significant. The BAAQMD Guidelines contain a list of feasible control measures for construction-related PM10 emissions and indicate that the construction-related emissions of criteria pollutants are accounted for in the BAAQMD's emission inventory that is the basis for regional air quality plans; therefore, construction-related emissions are not expected to impede attainment or maintenance of ozone or carbon monoxide standards in the Bay Area. As such, the proposed project's potential contribution to air quality impacts would be rendered less than cumulatively considerable through implementation of the measures discussed in Section 3.4, *Air Quality*.

Because global warming is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is clearly a cumulative impact. GHG emissions from the project could contribute to cumulative GHG emissions in California and to the potential adverse environmental impacts of climate change.

Although the proposed project would generate GHG during construction and operational phases, GHG generation during construction represents a one-time contribution. Further, project GHG emissions would represent a small fraction of California's emissions, which is equivalent to 0.0007 percent of global emissions. Thus, the impacts related to the project's emission of GHGs are considered to be less than cumulatively considerable.

Consultation and Coordination

Chapter 6 **Consultation and Coordination**

6.1 Federal Requirements

National Environmental Policy Act of 1970

The NEPA process is intended to help public officials make decisions that are based on an understanding of environmental consequences and take actions that protect, restore, and enhance the environment. Regulations implementing NEPA are set forth by the Council on Environmental Quality (CEQ). Reclamation and the District have followed NEPA and CEQ regulations in the development of the South Bay Advanced Recycled Water Treatment Facility Project EA/IS-MND.

Section 404 of the Clean Water Act

The project would not result in work in jurisdictional waters, wetlands, or other waters of the United States (ponds and associated wetlands) and thus would not require a CWA Section 404 permit from the U. S. Army Corps of Engineers (Corps).

Section 10 of the Rivers and Harbors Act

There are no navigable waters in the project area. Therefore, the project does not fall within the jurisdiction of Section 10.

Section 401 of the Clean Water Act

The project would not result in discharges to a water of the State. Therefore, it would not require a 401 water quality certification issued by the RWQCB.

National Pollutant Discharge Elimination System Program

The project could discharge stormwater into local waterways during construction; consequently, a NPDES General Storm Water Permit for Construction Activities would be required. The construction contractor would

need to develop, submit, and comply with a SWPPP that meets the requirements of this permit.

Other potentially required permits include:

- NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities; and
- NPDES General Discharge Requirements for Discharge or Reuse of Extracted Brackish Groundwater and Reverse Osmosis Concentrate Resulting from Treatment of Groundwater by Reverse Osmosis and Discharge or Reuse of Extracted and Treated Groundwater Resulting from Structural Dewatering.

At a minimum, a Notice of Intent (NOI) will be submitted and, if appropriate, the RWQCB would issue one or both permits. For the storm water discharge permit, plant operations staff would need to develop, submit, and comply with a SWPPP that meets the requirements of this permit.

Executive Order 11990: Protection of Wetlands

Executive Order (EO) 11990 established the protection of wetlands and riparian systems as the official policy of the federal government. It requires all federal agencies to consider wetland protection as an important part of their policies and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. As noted above, the project would not affect wetlands; therefore, the project would comply with EO 11990.

Executive Order 11988: Flood Plain Management

EO 11988 requires Reclamation to regulate development in floodplains and preserve the floodplains' natural and beneficial values. Measures to comply with EO 11988 have been integrated into the project.

Clean Air Act

Because the project involves ground-disturbing activities with the potential to result in fugitive dust emission impacts and the use of heavy construction machinery that generates emissions potentially harmful to humans, coordination with BAAQMD is required. The EA/IS-MND prepared for this project contains measures aimed at fulfilling the requirements of the BAAQMD. Implementation of these measures is expected to reduce short-term mobile emissions. Thus, no further action is required.

Federal Endangered Species Act

Section 7 of the ESA requires federal agencies, in consultation with USFWS and NMFS, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. The required steps in the Section 7 consultation process are as follows:

- Agencies must request information from USFWS and NMFS on the existence in a project area of listed species or species proposed for listing.
- Following receipt of the USFWS/NMFS response to this request, agencies generally prepare an informal memo of concurrence or a BA to determine whether any listed species or species proposed for listing are likely to be affected by a proposed action.
- Agencies must initiate formal consultation with USFWS and NMFS if the proposed action would affect listed species.
- USFWS and NMFS must prepare a BO to determine whether the action would jeopardize the continued existence of listed species or adversely modify their critical habitat.

If a finding of jeopardy or adverse modifications is made in the biological opinion, USFWS and NMFS must recommend reasonable and prudent alternatives that would avoid jeopardy, and the federal agency must modify project approval to ensure that listed species are not jeopardized and that their critical habitat is not adversely modified (unless an exemption from this requirement is granted).

On September 1, 2009, Reclamation requested concurrence from the National Marine Fisheries Service (NMFS) that the project would not adversely affect the Central Valley steelhead. Continued coordination with NMFS will be needed to resolve ESA issues regarding steelhead. Based on discussions with NMFS concerning water quality and habitat in Alviso Slough, Reclamation concluded that a “not likely to adversely affect” determination is anticipated for the project.

National Historic Preservation Act of 1966, 16 U.S.C. Section 470 et seq., as amended

The purpose of this act is to protect, preserve, rehabilitate, or restore significant historical, archeological, and cultural resources. Based on the results of a cultural inventory and the evaluation of the historic property present in the project area, the proposed action would have no historic properties affected pursuant to 36 CFR Part 800.4 (d)(1). Reclamation and the District would consult with the SHPO and seek their concurrence on this finding of effect.

Chapter 7

References Cited

Chapter 7

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Ong, S. Associate Engineer, City of San Jose. June 11, 2009 – email to ICF Jones & Stokes.

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Zhu, S. Project Manager, Santa Clara Valley Water District. June 4, 2009 – email to ICF Jones & Stokes.

Chapter 8

List of Preparers

8.1 Black & Veatch, Design and Engineering

- Sanjay Reddy—Project Manager
- Daniel Lopez—Engineering Manager
- Michael Tache—Design Engineer

8.2 ICF Jones & Stokes, Environmental Consultant

- Harlan Glines—Project Director
- Andrew Martin—Project Manager, Geology and Soils, Hydrology and Water Quality, Transportation and Traffic, and other issues
- Donna Maniscalco—Biology, Land Use, Population and Housing, Public Services, and Recreation
- Lindsay Christensen—Aesthetics, Air Quality, Hazards and Hazardous Materials, and Noise
- Brian Schuster—Air Quality
- Joshua Carman—Air Quality and Noise
- Alisa Reynolds—Cultural Resources
- Joanne Grant—Cultural Resources
- Madeline Bowen—Cultural Resources
- Amanda Petel—Utilities and Service Systems
- Heidi Lypps—Technical Editing
- Jenelle Mountain-Castro—Publications Specialist
- Sehn Saelee—Graphics

Appendix A

Initial Study/Environmental Checklist

Chapter 3

Environmental Checklist

- 1. Project Title:** South Bay Advanced Recycled Water Treatment Facility
- 2. Lead Agency Name and Address:** Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614
- 3. Contact Person and Phone Number:** Stanley Zhu
Tel.: (408) 265-2607 ext. 2955
- 4. Project Location:** The project would be located in an undeveloped area east of the existing SBWR TPS near Alviso in northern San Jose and would be in close proximity to the SJ/SC WPCP. The SBWR TPS is located near 4200 Zanker Road, and the SJ/SC WPCP is located at 700 Los Esteros Road, approximately 0.55 miles north of Highway 237 and 0.6 miles south of San Francisco Bay.
- 5. Project Sponsor's Name and Address:** Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614
- 6. General Plan Designation:** Public/Quasi-Public
- 7. Zoning:** Light industrial
- 8. Description of Project:** See Chapter 2 of the EA/IS-MND.
- 9. Surrounding Land Uses and Setting:**
The site is located near the southern end of San Francisco Bay and is surrounded by industrial and agricultural land uses.
- 10. Other Public Agencies whose Approval Is Required:** City of San Jose

Environmental Factors Potentially Affected:

The environmental factors checked below would potentially be affected by this project, as indicated by the checklist on the following pages. For detailed impact discussions, refer to Chapters 3 and 4 in this EA/IS-MND.

- | | | |
|--|--|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards and 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 checked="" type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance | |

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 to the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- ☐ I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- ☐ I find that the proposed project **MAY** have an impact on the environment that is “potentially significant” or “potentially significant unless mitigated” 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** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **ENVIRONMENTAL IMPACT REPORT** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature _____

Date _____

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
I. AESTHETICS				
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a 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 that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
II. AGRICULTURAL RESOURCES					
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:					
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
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III. AIR QUALITY

When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

- | | | | | | |
|----|---|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| a. | Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. | Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input 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 type="checkbox"/> | <input checked="" type="checkbox"/> |

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES					
Would the project:					
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, 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 native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
V. CULTURAL RESOURCES					
Would the project:					
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 an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d.	Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
VI. GEOLOGY AND SOILS				
Would the project:				
a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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.				
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Strong seismic groundshaking?				
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Seismic-related ground failure, including liquefaction?				
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Landslides?				
b.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Result in substantial soil erosion or the loss of topsoil?				
c.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?				
d.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				
e.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?				

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS					
Would the project:					
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Emit hazardous emissions or involve handling 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 that 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.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and 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.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY					
Would the project:					
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, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	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 that would result in substantial erosion or siltation onsite or offsite?	<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 that would result in flooding onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater 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 hazard area, 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 hazard area structures that would impede or redirect floodflows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
j.	Contribute to inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
IX. LAND USE AND PLANNING					
Would the project:					
a.	Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a 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 type="checkbox"/>	<input checked="" 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"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
X. MINERAL RESOURCES					
Would the project:					
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<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"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
XI. NOISE					
Would the project:					
a.	Expose persons to or generate noise levels in excess of standards established in a 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.	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Result in 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.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and 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"/>
f.	Be located in the vicinity of a private airstrip and 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"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
XII. POPULATION AND HOUSING					
Would the project:					
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
XIII. PUBLIC SERVICES				
Would the project:				
a.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:			
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
XIV. RECREATION					
Would the project:					
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC					
Would the project:					
a.	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input checked="" type="checkbox"/> (Construction)	<input checked="" type="checkbox"/> (Oper.)	<input type="checkbox"/>
b.	Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input checked="" type="checkbox"/> (Construction)	<input checked="" type="checkbox"/> (Oper.)	<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 because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e.	Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g.	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS					
Would the project:					
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Require or result in the construction of new stormwater drainage 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"/>
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE					
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 that 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 of Impacts

- 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?**

Less than significant with mitigation. The proposed project would not substantially reduce the habitat or population of a fish or wildlife species, threaten to eliminate a plant or animal community, restrict the range of a rare or endangered plant or animal species, or eliminate important examples of the major periods of California history or prehistory. However, the project has the potential to degrade the quality of the environment (i.e. hazardous materials, biological resources, cultural resources, and construction-related air quality, noise, and traffic impacts). This impact is considered less than significant with

implementation of the best management practices proposed as part of the project (refer to Chapter 2, *Best Management Practices*, of the EA/IS-MND) and with the additional mitigation measures identified in Chapter 3 of the EA/IS-MND.

- 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.)**

Less than significant. The proposed project would not result in a substantial contribution to impacts that are individually limited or cumulatively considerable. The project’s effects are primarily temporary and construction-related, and all potential impacts would be less than significant or reduced to less than significant with mitigation required as part of the proposed project. No impacts would result in a substantial contribution to a significant cumulative impact. Therefore, this impact is considered less than significant.

- c. **Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?**

Less than significant with mitigation. The project has the potential to have minor adverse effects on human beings from increased noise, dust, traffic, and exposure to hazardous materials during construction. This impact is considered less than significant because the impacts would be temporary and would be mitigated by implementing the best management practices proposed as part of the project (refer to Chapter 2, *Best Management Practices*, of the EA/IS-MND) and with the additional mitigation measures identified in Chapter 3 of the EA/IS-MND.

Appendix B

Special Status Plant and Wildlife Species in the Region

Table B-1. Special-Status Wildlife Species in the Project Region

Common and Scientific Name	Status Fed/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
INVERTEBRATES				
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E/–	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds	None
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E/–	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties	Large, deep vernal pools in annual grasslands	None
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	T/–	Vicinity of San Francisco Bay including San Francisco peninsula in San Mateo Co., and mountains near San Jose, Santa Clara County	Native grasslands on outcrops of serpentine soil; California plantain and owl's clover are host plants	None
AMPHIBIANS				
California red-legged frog <i>Rana aurora draytoni</i>	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods.	None
California tiger salamander <i>Ambystoma californiense</i> (= <i>A. tigrinum c.</i>)	C/SSC, PT	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	None
REPTILES				
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	T/T	Restricted to Alameda and Contra Costa Counties; fragmented into 5 disjunct populations throughout its range	Valleys, foothills, and low mountains associated with northern coastal scrub or chaparral habitat; requires rock outcrops for cover and foraging	None
FISH				
Chinook salmon - spring-run <i>Oncorhynchus tshawytscha</i>	T/T	Central Valley Spring-Run includes populations spawning in the Sacramento River and its tributaries	Spawn in the upper reaches of the Sacramento River and its tributaries	None; Out of species' range
Chinook salmon - winter-run Sacramento River <i>Oncorhynchus tshawytscha</i>	E/E	Occur primarily in the Sacramento/San Joaquin Estuary before entering the ocean. Runs are limited to the Sacramento River	Spawn in the upper reaches of the Sacramento River	None; Out of species' range

Table B-1. Continued

Common and Scientific Name	Status Fed/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Chinook salmon - fall-run Central Valley <i>Oncorhynchus tshawytscha</i>	SC/SSC	Central Valley fall-run includes populations spawning in the Sacramento River and its tributaries	Spawn in the upper reaches of the Sacramento River and its tributaries	Moderate
Delta smelt <i>Hypomesus transpacificus</i>	T/T	Typically associated with Sacramento/San Joaquin Delta in fresh to brackish water	Reside primarily in the interface between salt and freshwater	None; Out of species' range
Steelhead—Central California coastal DPS <i>Oncorhynchus mykiss</i>	T/–	Central coastal basins from the Russian River, south to Soquel Creek, including San Francisco and San Pablo Bay basins	Spawns in cool, clear, well-oxygenated streams. Juveniles remain in freshwater for one or more years before migrating	Moderate
Steelhead—Central Valley DPS <i>Oncorhynchus mykiss</i>	T/–	Spawns in the Sacramento and San Joaquin rivers and their tributaries	Juveniles spend 1-4 years in fresh water before migrating to the ocean as smolts	None; Out of species' range
BIRDS				
California least tern <i>Sterna antillarum</i> (=albifrons) browni (nesting colony)	E/E	Nests on beaches along the San Francisco Bay and along the southern California coast from southern San Luis Obispo County south to San Diego County	Nests on sandy, upper ocean beaches, and occasionally uses mudflats; forages on adjacent surf line, estuaries, or the open ocean	None
Golden eagle <i>Aquila chrysaetos</i>	PR/SSC, FP	Foothills and mountains throughout California. Uncommon nonbreeding visitor to lowlands such as the Central Valley	Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals	Present; species seen soaring over site by Jones & Stokes personnel—10.05.07
Western burrowing owl <i>Athene cunicularia hypugea</i>	–/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows	Probable—nesting habitat in project area and occurrences in area.
Western snowy plover (inland population) <i>Charadrius alexandrinus nivosus</i>	–/SSC	Nests at inland lakes throughout northeastern, central, and southern California, including Mono Lake and Salton Sea	Barren to sparsely vegetated ground at alkaline or saline lakes, reservoirs, ponds and riverine sand bars; also along sewage, salt-evaporation, and agricultural waste-water ponds	None

Table B-1. Continued

Common and Scientific Name	Status Fed/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
White-tailed kite <i>Elanus leucurus</i>	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	Present; species seen soaring over site by Jones & Stokes personnel—10.05.07
California clapper rail <i>Rallus longirostris obsoletus</i>	E/-	Marshes around San Francisco Bay and east through the Sacramento River–San Joaquin River Delta to Suisun Marsh.	Restricted to salt marshes and tidal sloughs. Usually associated with heavy growth of pickleweed. Feeds on mollusks removed from the mud in sloughs.	None
MAMMALS				
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	E/E, FP	San Francisco, San Pablo, and Suisun Bays; the Delta	Salt marshes with a dense plant cover of pickleweed and fat hen; adjacent to an upland site	None
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County	Saltbush scrub, grassland, oak, savanna, and freshwater scrub	None

Table B-1. Continued

Common and Scientific Name	Status Fed/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Status explanations:				
Federal				
E	=	listed as endangered under the federal Endangered Species Act.		
T	=	listed as threatened under the federal Endangered Species Act.		
PT	=	proposed for federal listing as threatened under the federal Endangered Species Act.		
PR	=	Protected under the Bald Eagle/Golden Eagle Protection Act.		
SC	=	Species of concern.		
C	=	species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.		
–	=	no listing.		
State				
E	=	listed as endangered under the California Endangered Species Act.		
T	=	listed as threatened under the California Endangered Species Act.		
FP	=	fully protected under the California Fish and Game Code.		
PT	=	proposed for state listing as threatened		
SSC	=	species of special concern in California.		
–	=	no listing.		
Potential Occurrence in the Study Area				
High:	Known occurrences of the species within the study area, or California Natural Diversity Database, or other documents, records the occurrence of the species within a 10-mile radius of the study area. Suitable habitat is present within the study area.			
Moderate:	California Natural Diversity Database, or other documents, records the known occurrence of the species within a 10-mile radius of the study area. Poor quality suitable habitat is present within the study area.			
Low:	California Natural Diversity Database, or other documents, does not record the occurrence of the species within a 10-mile radius of the study area. Suitable habitat is present within the study area.			