C.6 HYDROLOGY AND WATER QUALITY

C.6 HYDROLOGY AND WATER QUALITY

C.6.1 ENVIRONMENTAL BASELINE AND REGULATORY SETTING

C.6.1.1 Regional Overview

The proposed Northeast San Jose Transmission Reinforcement Project is located in the southern San Francisco Bay region. The proposed project covers areas within the cities of Fremont and San Jose, as well as a small unincorporated portion of Santa Clara County.

The general geographic province of the project region can be described as the baylands that fringe the southern San Francisco Bay estuary. Baylands have been defined as the shallow water habitats around San Francisco Bay that are touched by the tides with land-forms created primarily by estuarine processes. Baylands also include the adjacent upland regions that would be tidal in the absence of levees, dykes, sea walls, or other engineered structures (Goals Project, 1999). From the geomorphic perspective, the project area represents a transitional zone between the open estuary to the west and higher elevation regions to the east and south that includes tidal salt marshes, diked wetlands, salt ponds, storage treatment ponds, and river floodplains.

The creeks, marshes, and other wetlands of this area receive fresh water runoff from precipitation during the winter months, primarily November through April, where mean annual precipitation at San Jose is roughly 14.5 in. Along Coyote Creek near the project site, peak discharges have been recorded as high as 6,000 cubic feet per second (cfs). The Coyote Creek channel has recently been enlarged for flood protection and can now contain flows as great as 14,500 cfs. Up to 120 million gallons per day (mgd) of effluent from the San Jose/Santa Clara Water Pollution Control Plant (WPCP) is discharged throughout the year into Artesian Slough. This treated water, along with the release of imported water from contributing watersheds, has greatly augmented the supply of fresh water to neighboring tidal lands, resulting in more brackish conditions in the marshlands within the project region. The project area is located within the Santa Clara groundwater basin, where depth to groundwater is generally shallow (5 to 20 ft). Regional groundwater flow is to the north and west, toward the Bay.

Compared to the central San Francisco Bay further north, tidal range is greatly enhanced in southern San Francisco Bay due to the focusing of energy as the shape of the estuary tapers towards the south. Maximum spring tidal range observed recently in February 2000 exceeded 12 ft at the Warm Springs Marsh within the project area (Kulpa, 2000). Spring tidal ranges attenuate to the 8 ft range seven miles to the west of the project area where the Coyote Creek channel broadens into the open estuarine bay. Although somewhat predictable, the highly variable nature of both tidal conditions and fresh water inputs creates very complex surface hydrologic conditions in the project area where flow in channels and creeks is bi-directional and the range of flow velocities is high.

C.6.1.2 Environmental Setting

C.6.1.2.1 *Surface Flow Network*

Between the Newark substation to the north and the proposed Los Esteros Substation to the south near Zanker Road, the proposed 230 kV Transmission Line Route and the Westerly Route Alternative cross several surface water bodies including creeks, sloughs, wetlands, and salt evaporation ponds along the southeastern border of San Francisco Bay. These features are shown on Figure C.6-1. The hydrology of these water bodies is described below.

Creeks, Sloughs, and Flood Control Channels. Coyote Creek is the largest drainage basin in the Santa Clara Valley, collecting runoff from a 320 square mile watershed spanning portions of the Diablo Range, Santa Cruz Mountains, and Santa Clara Valley. In its 80-mile length, Coyote Creek passes through two flood control reservoirs at the western base of the Diablo Range then flows northwest through the City of San Jose and ultimately empties into San Francisco Bay west of the project site. Particularly in urban areas of San Jose, Coyote Creek has been channelized and re-routed to improve flow capacities during flood periods. Recently, a new overflow channel (Coyote Creek Flood Bypass) was built to divert floodwaters along the south side of Newby Island (Figure C.6-1). Additionally, an enlarged and enhanced levee system has recently been constructed along the lower portions of Coyote Creek to bolster flood conveyance capacity. This engineering effort occurred in response to widespread flooding during the wet El Niño winter of 1982-3. Standish Dam, which was constructed near Milepost (MP) 5.2 of the proposed transmission line route controls upstream advances of tidal waters. The proposed route crosses Coyote Creek between MPs 4.7 and 4.9 and crosses the Coyote Creek Flood Bypass near MP 5.0.

Mud Slough is found north of Coyote Creek in the project area and links upstream to Laguna Creek to the north. As a meandering braid of the larger Coyote Creek network, Mud Slough branches off from Coyote Creek west of the Warm Springs wetland and rejoins Coyote Creek about 2 miles downstream towards the west. The proposed route does not cross Mud Slough while the Westerly Route Alternative crosses Mud Slough near MP 2.0.

Laguna Creek enters the project area from the north and acts as a flood control channel through the Cities of Newark and Fremont capturing the Canada del Aliso and Agua Caliente tributaries from northeast of the project area. The proposed route crosses Laguna Creek near MP 2.6 and the Westerly Alternative crosses Laguna Creek near MP 2.6 of its route, just upstream of the confluence with Mud Slough at the northwest corner of the Wetland Mitigation Pond restored wetland.

The Fremont Flood Control Channel captures the Agua Fria Creek, Toroges Creek, and Scott Creek tributaries as it flows southward along the west side of the Nimitz Freeway. This flood control channel discharges into Coyote Creek just northwest of the old Fremont airport. The Proposed Route crosses

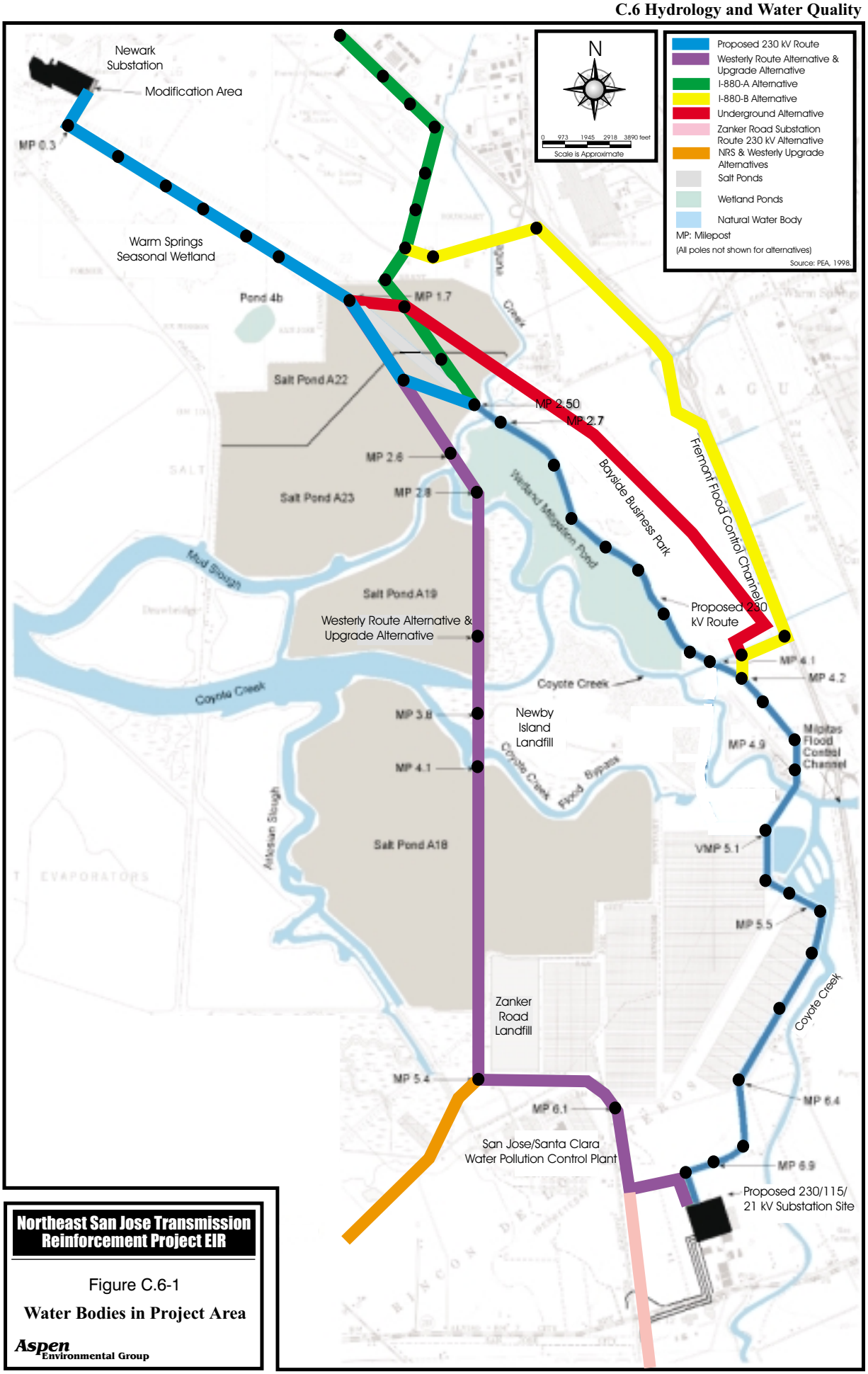

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Figure C.6-1

Water Bodies in Project Area

Aspen Environmental Group

this flood control channel approximately 500 to 1,000 feet east of its confluence with Coyote Creek, near Milepost 4.1.

The Milpitas Flood Control Channel enters the project area from the east collecting runoff from several streams originating in the foothills to the east including Arroyo de los Coches and the Tularcitos, Calera, Berryessa, and Lower Penetencia creeks. The Milpitas Flood Control channel joins Coyote Creek between Dixon Landing Road and the Coyote Creek Flood Bypass, just east of Milepost 5.0 of the proposed route. Neither the proposed nor the Westerly alternative routes directly cross the Milpitas Channel.

The Guadalupe River is the second largest surface water body in the project area and flows west of Coyote Creek. At its closest point to the project area, the river passes approximately 1.7 miles west of the proposed Los Esteros Substation site. The river flows through a levied flood channel from downtown San Jose to its confluence with Alviso Slough and Coyote Creek, west of the project area. Tributaries to the Guadalupe River are found south and west of the project area.

Wetlands. The proposed route and Westerly Route Alternative pass through a variety of wetland types including seasonal wetlands, intertidal mud flats, brackish marsh, and salt marsh. In the project area, wetland hydrology varies according to site elevation and proximity to tidal or stream channels. Some wetlands are primarily tidally influenced, other wetlands are more stream dominated, and some seasonal wetlands have ponded water or poor drainage only during the rainy season. Section C.3, Biological Resources, describes and defines these wetland areas. The proposed route crosses fewer wetland habitat types in comparison to the Westerly Route Alternative. In contrast to the Westerly Route Alternative, the proposed route travels through the more elevated developed upland of the Bayside Business Park and therefore does not have tower locations or pass through the intertidal mudflats of the Wetland Mitigation Pond restored wetland.

Salt Evaporation Ponds. Cargill maintains and operates a network of salt ponds around the perimeter of the southern San Francisco Bay. Both the proposed route and Westerly Route Alternative pass through some of these ponds. This area originally was comprised of wetlands and tidal flats before the salt ponds were built. At MP 1.7 south of the Newark Substation, the proposed route enters Salt Ponds A22, and then passes into Salt Pond A23 near MP 2.1. The Westerly Route Alternative also passes through Salt Ponds A22 and A23 and also passes through Salt Pond A19 and the very large Salt Pond A18. Salt Ponds A18 and A19 typically have 3 or more feet of water; Salt Ponds A22 and A23 are typically dry in the late summer and early fall.

Bay water enters the salt pond system west of the project area, west of Alviso, and is pumped and drained through the pond system in a counter-clockwise direction**.** Evaporation raises the salinity of each pond, and the salt brines are managed so that they are ready to be processed when they reach Cargill's plant in Newark. The entire pond cycle lasts approximately 5 years. The salinity in these ponds is quite high compared to Bay water.

Cargill maintains levees surrounding the salt ponds and also supports the levees of Coyote Creek, Mud Slough, and Agua Caliente Creek, which are adjacent to the salt ponds. The levees are maintained by a dredge barge that accesses channels around the perimeter of the salt ponds adjacent to the levees. Each pond is accessed by the dredge barge through a dredge lock. The access channels in the ponds double as borrow areas for new material that is used to maintain the levees.

C.6.1.2.2 *Flooding Conditions*

The Federal Emergency Management Agency (FEMA) has mapped the potential effects of a 100-year flood on much of the project area and vicinity (FEMA flood maps and revisions, 1986 to 1997). FEMA's flood zone designations are described in Table C.6-1. FEMA's flood zones in the project area are shown on Figure C.6-2. According to Santa Clara Valley Water District (SCVWD) representatives, the principal cause of flooding in the areas mapped Zone A1 is due to high tides in San Francisco Bay.

Table C.6-1 FEMA Flood Designations in the Project Area

Designation	FEMA Description
A	Areas of 100-year flood; base elevation and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between 1 and 3 feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH (El 20–36)	Area of 100-year flooding where depths are between 1 and 3 feet; base flood elevations are shown, but no flood hazard factors are determined.
A1 to A30	Areas of 100-year flood; base flood elevations (El9) and flood hazard factors determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than 1 foot or where the contributing drainage area is less than 1 square mile; or areas protected by levees from the base flood.
C	Areas of minimal flooding (no shading).
D	Areas of undetermined, but possible, flood hazards.
V (1-30)	Area of 100-year coastal flood with velocity (wave action), base flood elevations, and flood hazard factors determined.
Note: The base elevations listed in the AH and A1 to A30 designations refer to the elevation to which floodwaters are predicted to rise during a 100-year storm event. Elevations are referenced to the National Geodetic Vertical Datum (NGVD).	

The main findings from the FEMA flood maps (Figure C.6-2) are summarized below:

- Newark Substation and the northernmost 1.2 miles of both the proposed route and the Westerly Route Alternative are outside of the 100-year floodplain in Zone C

- Segments of the Proposed Route that flank the Fremont Flood Control Channel, Laguna Creek, Agua Caliente, and Coyote creeks between Mileposts 1.2 and 5.1 are within Flood Zone A1 [with a base flood elevation of 9 feet above the National Geodetic Vertical Datum (NGVD[1]*) for mean lower low water (MLLW)]. South of Milepost 5.1, the proposed route exits the 100-year floodplain and enters Flood Zone B

[1] NGVD is the national datum established by the USGS to reference elevations. The elevation of zero feet in NGVD corresponds approximately with mean sea level.

- Between Mileposts 1.2 and 6.6 most of the Westerly Route Alternative is within Zone A1. South of Milepost 6.6, the Westerly Route exits the 100-year floodplain and enters Zone B

- Along the route of the Los Esteros to Montague 115 kV power line, the portion west of Coyote Creek borders Flood Zone B to the north (outside the 100-year floodplain), and shallow flooding Zones AH (base flood elevation 26 feet above NGVD) and AO (average floodwater depth of 1 foot or less) to the south. East of Coyote Creek, the power line divides Zone B to the north and Zone D (areas of undetermined, but possible flooding) to the south.

Historical flow records for Coyote Creek date back to 1903. Large flood events occurred in 1958, 1969, and 1983, when maximum flows approached 6,000 (cfs), 4,000 cfs, and 5,000 cfs, respectively. These flows resulted in extensive flooding, particularly in the low elevation areas west of I-880 near SR 237. The SCVWD recently completed a major flood control project on Coyote Creek, which greatly increased the flow capacity and decreased the threat of flooding to surrounding areas. In July 1996, earthen levee construction was completed along Coyote Creek from Montague Expressway to San Francisco Bay, providing a minimum of 3 feet of freeboard above the predicted 100-year flood levels in the creek channel. An earthen overflow channel was also constructed inside the levee. The new levees and overflow channel have resulted in an increase in creek capacity to 14,500 cfs, and the elimination of backwater conditions south of Montague Expressway. In the winter of 1996–97, flow in Coyote Creek approached 6,000 cfs, and no flooding was observed in the basin. In addition, no flooding was observed in the wet El Niño winter of 1997-98.

Following these recent engineering efforts to enlarge and strengthen the levees along Coyote Creek, the SCVWD received a Letter of Map Revision (1997) from FEMA acknowledging that the recent flood control projects had reduced the potential flood hazard. This letter removed the 100-year floodplain status of much of the lower Coyote Creek basin. In the project area, Flood Zone B south of MP 5.1 along the proposed route includes a large area that is no longer mapped as 100-year floodplain (Figure C.6-2).

Between highways 101 and 237, flood control improvements to the Guadalupe River have increased a predicted channel freeboard from 1.5 to 3 feet of during a 100-year storm event. Further south, downtown San Jose area is still vulnerable to periodic flooding from the river. When this has occurred historically, floodwaters from the San Jose area flowed slowly as overbank flow northwards into the southern portion of the project area. To reduce this flood hazard in central San Jose, levee upgrades to 100-year flood standards are scheduled to be completed in the downtown area.

Most of the lower Coyote Creek basin residing below elevation 9 feet NGVD (usually north of SR 237) is subject to saltwater flooding from the Bay during extremely high tides. The elevation of the Proposed substation site is approximately 10 to 14 feet above the NGVD.

C.6.1.2.3 *Surface Water Quality*

Water quality objectives for surface water in the project area are described in the Regional Water Quality Control Board (RWQCB) *Water Quality Control Plan* for the San Francisco Bay Region. These water quality objectives are established to protect the beneficial uses of surface water, which include recreational value and habitat for various types of wildlife.

Salinity values in Coyote Creek, Laguna Creek, and Mud Slough vary from fresh to brackish depending upon the balance between upland freshwater sources and more saline waters from San Francisco Bay. Water quality in these creeks is also affected by point and non-point pollution sources originating from industrial, agricultural, and commercial activities throughout the Santa Clara Valley. The RWQCB regulates point discharges to these surface water bodies through the National Pollutant Discharge Elimination System (NPDES) by granting permits regulating the amount of pollutant discharges.

The largest point source discharger in the South Bay area is the San Jose/Santa Clara Water Pollution Control Plant (WPCP), located about 0.5 mile north of the Los Esteros Substation (Figure C.6-1). As described in the *Water Quality Control Plan,* the WPCP discharges to Artesian Slough (a north flowing tributary of Coyote Creek about 0.75 mile west of the Westerly Route Alternative) under an NPDES permit. Because of the year-round large volume of this discharge, it has a significant influence on water quality near the discharge point. As part of the WPCP facility, several large sludge ponds are located between MPs 5.1 and 6.4 of the proposed route and MP 5.0 and 5.4 of the Westerly Route Alternative.

In 1989, the U.S. Environmental Protection Agency (U.S. EPA) designated the southern portion of the Bay as an impaired water body and this led to new discharge requirements for the WPCP and other dischargers. Water quality in the southern portion of the Bay has since improved, although high levels of metals which exceed criteria continue.

The urbanized areas of the Santa Clara Valley and the southern East Bay contribute non-point pollution in the form of storm water runoff that include non-permitted discharges (e.g., oily runoff from parking lots and roads).

In sum, water quality in the creeks and sloughs in the project area varies depending on the magnitude of local point sources, regional non-point sources and the nature of the streamflows which deliver these pollutants.

Wetlands in the project area have similar fluctuations in water quality as described above for the creeks and sloughs. Wetland areas adjacent to the creeks and sloughs have the most immediate responses to water quality fluctuations. Wetlands located farther away from creeks and channels have less variation in water quality. Water quality of seasonal wetlands reflects the characteristics of local sources of runoff.

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Figure C.6-2

Flood Potential in the Project Vicinity

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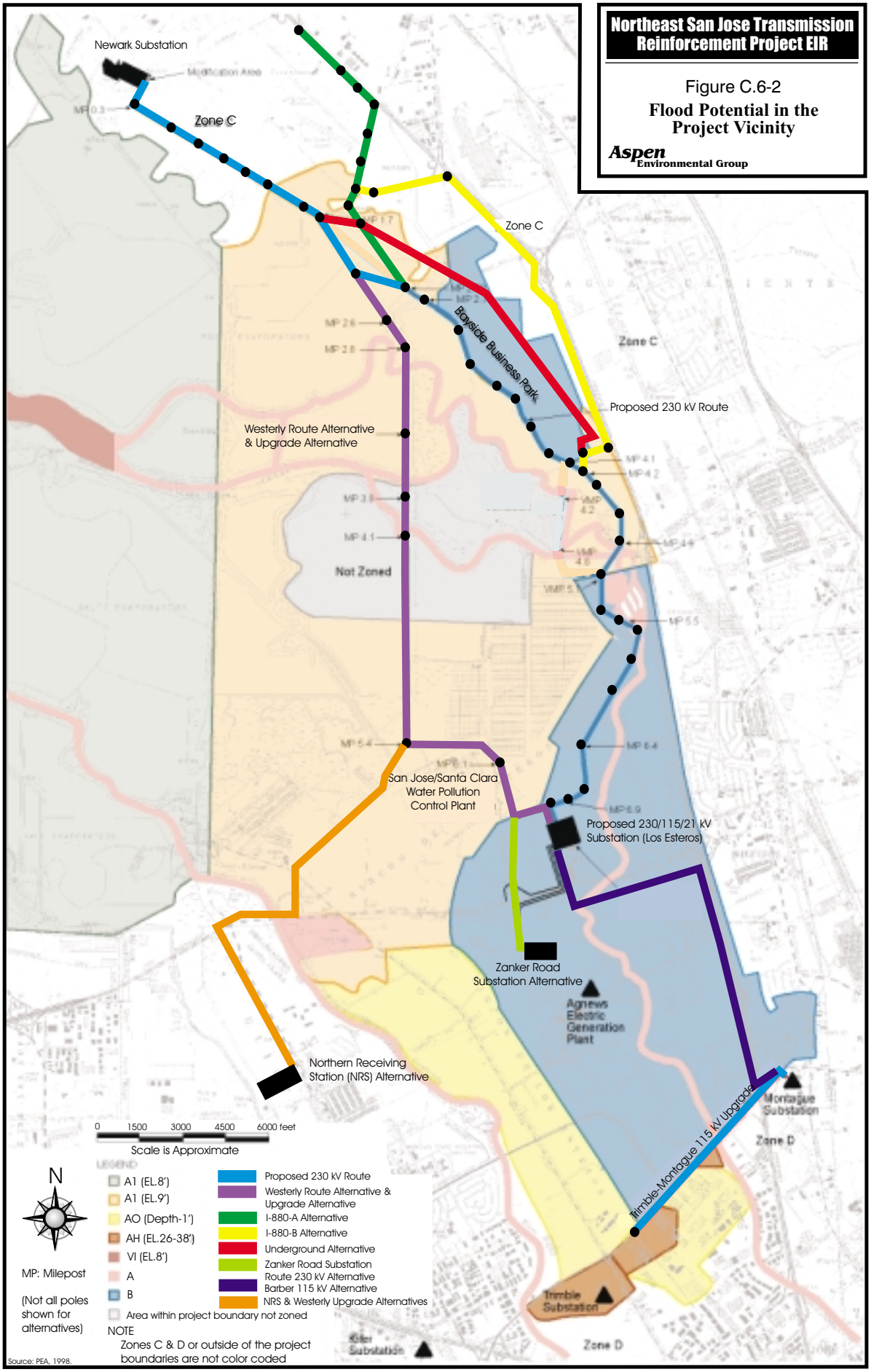

Water in the Cargill salt ponds (Figure C.6-1, A18-A23) is circulated to produce saline brines that are later used for salt production. The brines in the salt ponds have significantly higher salinities than surrounding natural surface waters. Brines in the salt ponds are contained by earthen dikes that prevent interaction with the surrounding natural surface waters. Cargill staff regularly inspects the dikes and maintains them to prevent leakage.

To maintain their dikes, Cargill's dredges earth material and places it upon the dikes. During this activity, local water quality is temporarily impaired in the vicinity of the operation. An environmental assessment of this activity by the San Francisco Bay Conservation and Development Commission (BCDC) found that the effect of dredging on water quality was short term and localized. BCDC concluded that dredging activities temporarily increased turbidity and decreased dissolved oxygen in the immediate vicinity. Dissolved oxygen decreases because the organic material in the disturbed Bay sediments oxidizes when it is mixed into the water column.

C.6.1.2.4 *Groundwater Hydrology*

The project area is located within the Santa Clara groundwater basin**.** Groundwater in the project area is typically encountered from 5 to 20 feet below ground surface, and is generally shallower with proximity to the Bay. Regional groundwater flow is to the north and west, toward the Bay.

Soils to 50 feet below grade are generally composed of clays with interbedded discontinuous sand lenses. These sediments have relatively poor groundwater yield and quality and are subject to saltwater intrusion; water from this shallow zone is not used for drinking. This shallow zone is separated from deeper aquifers by a blue clay aquitard, which extends to approximately 150 feet. Below this aquitard, groundwater is used as a supply throughout the Santa Clara groundwater basin. In Alameda County, the primary supply aquifer is called the Newark Aquifer.

Accelerated land subsidence was observed in the project vicinity in the 1970s as a result of groundwater overpumping. Although efforts to control the rate of groundwater pumping have dramatically reduced the rate of land subsidence, saltwater intrusion of the upper aquifer continues because of the depressed land surfaces. Wells in the region are used for municipal supply, domestic use, and irrigation. Most of these wells are more than 250 feet deep.

A Well Search Report developed by SCVWD lists privately owned wells at several properties adjacent to the proposed Los Esteros Substation and adjacent to both the proposed route and Westerly Route Alternative, although no wells are located directly within the Westerly Route corridor. One water well is located along the proposed route on the edge of the WPCP sludge drying beds. There are two wells located on the proposed Los Esteros Substation site. The depth and construction design of these wells are unknown, and they are not identified in the SCVWD Well Search Report. During a 1997 inspection, one well appeared to be inactive and the other well appeared to be used for agriculture.

C.6.1.2.5 *Groundwater Quality*

Groundwater from deep aquifers is an important water supply source for Santa Clara Valley and southern Alameda County; its quality is monitored extensively by and for public agencies. This groundwater is considered hard but generally of good quality. It is blended with other water sources and treated prior to delivery to SCVWD and the Alameda County Water District (ACWD) customers.

Groundwater quality in the shallow aquifers is degraded in many portions of the Santa Clara groundwater basin as a result of saltwater intrusion from San Francisco Bay and the tidally influenced stream channels. This intrusion has significantly degraded water quality of the Newark Aquifer in the project area and deeper aquifers further inland. The ACWD has an extensive groundwater monitoring and management program that is designed to monitor and reverse the effects of saltwater intrusion.

Additional localized groundwater quality degradation has occurred because of releases from past industrial and commercial activities. Typically, industrial water quality degradation affects only the shallow aquifers, but locally it may extend to the deeper aquifers used for water supply. The most common industrial groundwater quality impacts are from past releases of petroleum products or solvents. Releases to groundwater are investigated, remediated, and monitored under the oversight of RWQCB, ACWD, and SCVWD.

Because of the urbanized nature of portions of the project area, areas with pre-existing soil and water quality degradation may be encountered during construction. A number of properties along the proposed route and Westerly Route Alternative are identified in regulatory agency databases as having known or potential contamination that could be encountered during construction. The areas with pre-existing soil and groundwater quality degradation in the project area are summarized below (Figure C.6-3).

The proposed Los Esteros Substation site currently contains a nursery with greenhouses and support buildings. Because of the long history of agricultural use of the property, residues of agricultural chemicals may be present in the soil. The owner told PG&E Co. that an inactive diesel underground storage tank is located on the site. Inspections of the site indicate that chemical use is generally in small quantities, and there are unlikely to be significant pre-existing impacts that would impede construction of a substation. No areas of contamination are known to PG&E Co..

The Newby Island Landfill is located adjacent to Coyote Creek (Figure C.6-3). The Westerly Route Alternative would pass over a small portion of the western landfill and involve placement of towers near the landfill perimeter. The proposed route passes east of the landfill. The Newby Island Landfill is operated by Browning-Ferris Industries of California, Inc. (BFI) as a **Class III** sanitary landfill (**Class III** landfills accept municipal solid waste only, and no designated or hazardous wastes). The landfill is surrounded by a dike that, according to BFI personnel, was constructed to create the island prior to landfill operations. The site was opened around 1930 as an open burning dump before being

converted to a sanitary landfill in 1956. The landfill is permitted to accept municipal wastes but not hazardous or designated wastes. The dike is comprised of Bay Mud that was dredged from the surrounding area. BFI indicated that the dike may contain a small amount of inert construction debris (e.g., concrete), but does not contain landfill wastes. The landfill has a leachate collection system and gas collection system, and groundwater beneath the landfill is monitored routinely. Some landfill monitoring systems are located in the perimeter dike. BFI personnel indicated that, according to monitoring results, the landfill has not been found to affect groundwater or surface water quality.

The Westerly Route Alternative would involve construction of approximately three towers in the closed Nine Par Landfill (Figure C.6-3). The original Nine Par Landfill site also included the area shown on Figure C.6-3 as the Zanker Road Landfill. The original Nine Par Landfill opened in 1938 to handle municipal waste, and the landfill operated until closure in 1977. The Zanker Road Landfill and recycling center opened on the eastern portion of the original Nine Par site in 1985; it accepts construction debris only. The remainder of the Nine Par landfill has been closed since 1977 and is owned by the City of San Jose. No soil or groundwater testing information was available for the Nine Par Landfill.

The WPCP covers 1,700 acres, and is reportedly the largest advanced wastewater treatment plant in California, with a mean daily flow capacity of 167 million gallons per day (mgd), although discharge is restricted to 120 mgd. Wastewater treatment produces sludge that is treated in a series of lagoons and then transported in a slurry to sludge drying beds. The treated and dry sludge is then stockpiled for testing prior to being shipped off site.

The proposed route would include placement of approximately three towers (MP 5.6, 6.7, 7.0) just inside the sludge ponds along eastern boundary of the WPCP (see Figure B.2-1). The sludge in the drying beds is characterized by the WPCP as a non-hazardous soil-like inert material. Soluble and total metals concentrations are within acceptable regulatory limits. The sludge is Class A (contains no pathogens). Trace levels of certain volatile organic compounds, semi-volatile compounds, polychlorinated biphenyls (PCBs), and pesticides are reported to be present in some samples. The dried sludge is tested in compliance with applicable regulations prior to being shipped off site for reuse as fertilizer, landfill cover, or other use.

The old Fremont Airport is located along the proposed route between Mileposts 4.2 and 4.9. The former airport may have hazardous materials present on portions of the property from past activities. There is a plan to redevelop the airport from Milepost 4.2. The EIR for this redevelopment stated that the portions of the property with potential hazardous materials will be investigated and remediated as necessary.

A portion of the area for the Newark Substation Modification is currently used by PG&E Co. to store electrical equipment. According to workers at the facility, this area has been used to store and repair failed equipment for at least 30 years.

C.6.1.3 Applicable Regulations, Plans, and Standards

Federal, State, and county agencies will require permits and will be involved in developing plans and mitigation monitoring because the proposed project will traverse several streams, wetlands, and other lands under a variety of jurisdictions. The principal Federal agencies involved will be the U.S. Army Corps of Engineers (USACE), and the U.S. Department of Interior, Fish and Wildlife Service (USFWS), and the U.S. Environmental Protection Agency (U.S. EPA).

The principal State agencies will be the California Public Utilities Commission (CPUC); the Department of Water Resources (CDWR); the California Department of Fish and Game (CDFG), Central Coast Region; the California Regional Water Quality Control Board, San Francisco Bay Region; and the San Francisco Bay Conservation and Development Commission (BCDC).

The USACE will require a "Section 404 Permit" under the Federal Clean Water Act for construction within the waters of the United States or adjacent wetlands. Most of the floodplains of perennial stream channels crossed would be considered waters of the United States as defined by the ordinary high-water mark of the individual channels. The USACE, in reviewing 404 Permit applications, stresses avoidance of impacts, minimization of unavoidable impacts, and mitigation of unavoidable impacts.

The CDFG has direct jurisdiction, under Fish and Game Code Sections 1601-1603, on any activities that will divert or obstruct natural flow or change the bed, channel, or bank of any stream. The CDFG Code requires that formal notification and subsequent agreement, including mitigation measures, must be completed prior to initiating such changes. The 1603 Agreement is similar to the 404 Permit, but the area of jurisdiction is typically defined on a case-by-case basis for the location, nature and extent of disturbance, and mitigation.

San Francisco Bay Conservation and Development Commission (CBDC) is the federally designated state coastal management agency for San Francisco Bay and has jurisdiction in the greater San Francisco Bay area to administer the State's McAteer-Petris Act and the San Francisco Bay Plan. BCDC has a regulatory mandate to review all projects which impact the bay's wetlands.

As mandated by the 1987 amendments to the Clean Water Act, discharge of stormwater from developed areas is regulated under the National Pollutant Discharge Elimination System (NPDES). A General Construction Activity Storm Water Permit would be required from the State Water Resources Control Board (SWRCB). In California, the State Water Resources Control Board administers the NPDES program via the Regional Water Quality Control Boards (Regional Boards). In addition, the State Porter-Cologne Act requires the development of Basin Plans for drainage basins within California. The Basin Plans are implemented also through the NPDES program.

To obtain the general permit, a Storm Water Pollution Prevention Plan (SWPPP) must be prepared.

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Figure C.6-3
Areas with Potential Soil and Groundwater Quality Degradation

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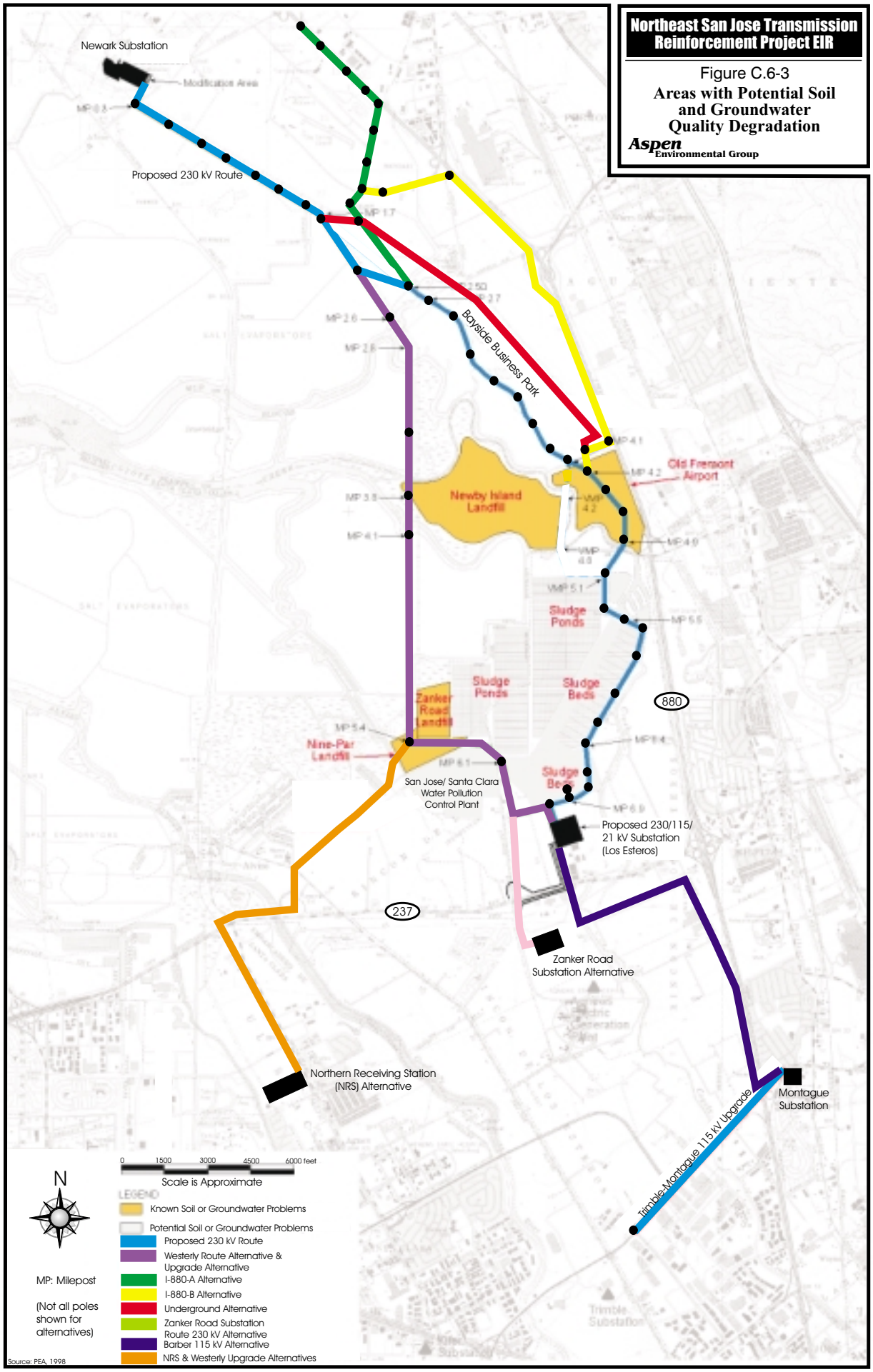

The SWPPP will outline Best Management Practices to minimize water contamination during construction. Many of these practices are included in Section B, Project Description, and mitigation measures of this report. Best Management Practices pertain to, but are not limited to, dry crossings of streams and salt ponds; seeding or revegetation of disturbed areas according to an established revegetation and landscaping plan; using water bars, diversion channels, and terraces to control erosion on steep terrain; maintaining construction sites in sanitary condition; disposal of wastes at appropriate locations; and control of stream sediments with straw bales or fabric filters.

In addition to the State and Federal requirements above, the California counties of Alameda and Santa Clara have State-mandated General Plans including elements that must be satisfied or modified to accommodate any new facilities that are currently not covered in existing plans (see Section C.7, Land Use and Public Recreation).

C.6.2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PROJECT

C.6.2.1 Introduction

Potential hydrologic impacts resulting from the proposed project are reviewed below. Significance criteria used to assess the relative importance of potential impacts are introduced; this discussion is followed by a summary of the Applicant's proposed measures based upon the Applicant's PEA and SPEA. Hydrologic impacts due to the construction and operation of the proposed 230 kV Transmission Line, Los Esteros Substation, and Trimble-Montague Upgrade Alternative are then analyzed for surface water hydrology and quality and groundwater hydrology and quality conditions. Twenty-five impacts are described where 13 are considered to be potentially significant but avoidable through mitigation measures (**Class II**), 9 impacts are considered to be adverse but not significant (**Class III**), and one impact is considered to be beneficial (**Class IV**). None of the hydrologic impacts associated with the proposed project are considered significant and unavoidable (**Class I**).

C.6.2.2 Definition and Use of Significance Criteria

As specified in CEQA Guidelines (Section 15064.7), a threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.

Appendix G of the CEQA Guidelines defines impacts to surface water and groundwater quantity and quality as being significant if they were to permanently decrease the capacity of drainages, cause substantial flooding, substantially degrade surface water quality, substantially decrease the available groundwater supply, or degrade groundwater quality. More specifically, the CEQA checklist asks if the proposed project would:

- Violate any water quality standards or waste discharge requirements?
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted?
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or offsite?
- 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 or surface runoff in a manner, which would result in flooding on or off site?
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
- Otherwise substantially degrade water quality?
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
- Place within a 100-year flood hazard area structures which 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?

The following significance criteria have been additionally recommended in response to the specific nature of the proposed project. These significance criteria are based on experience from previous transmission line projects and studies in California. The impacts to the quantity and quality of surface and groundwater would be considered significant if:

- Structures or substations constructed in conjunction with the transmission line would be subjected to a substantial risk of damage through flooding or erosion, which is defined as an increase of 1 foot per second in 100-year flow velocity
- Lateral erosion, stream-bed scour, or long-term channel degradation would result in short- or long-term exposure of the structure or substation foundations to air or flowing water
- Flooding or scour would result in significant damage to access roads/bridges or to other structures related to the proposed project. Significant damage to these structures could place the transmission line at risk of failure, and is defined by lateral erosion which outflanks the structure, vertical scour which extends deeper than the structure piers or abutments, and overtopping of the structure
- Construction activities would violate State or federal water quality standards or objectives, or would result in the discharge of contaminants (such as gasoline or diesel fuel) into the surface flow of a stream
- Construction would divert or reduce subsurface flow to wetland areas, springs, or aquifers
- The proposed project or alternatives would result in a long-term substantial increase in the sediment load of a stream (e.g., post-project construction)
- Construction would result in a short-term, direct discharge of sediment into a flowing stream in excess of the minimum necessary to divert flows around the construction site.

C.6.2.3 Applicant Proposed Measures

Table C.6-2 presents the Applicant Proposed Measures (APMs) that PG&E Co. proposes to implement to reduce hydrologic impacts [Proponent's Environmental Assessment (PEA) of June 1998]. The numbering convention used below is that of the PEA and should not be confused with mitigation measures described further in Sections C.6.2.4 through C.6.2.7.

Table C.6-2 Applicant Proposed Measures for Hydrology

Issue	Measure
Surface Water Hydrology	**APM 7.2a**. During ingress and egress of equipment and materials in Salt Ponds A22 and A23 (both proposed and Westerly Route Alternative) and Salt Ponds A18 and A19 (Westerly Route Alternative only), PG&E Co. will take care to preserve the integrity of levees, dikes, Cargill's existing dredge locks, and natural drainage patterns. PG&E CO. will repair any damage to the dikes at dredge locks while accessing the salt ponds using techniques similar to those employed by Cargill during their routine dike maintenance. Construction activities in Salt Ponds A22 and A23, and possibly A18, will be limited to the dry season (between April 15 and October 15). **APM 7.4a**. The elevation of the proposed Los Esteros Substation site is between 10 and 14 feet above NGVD, according to existing maps. Prior to construction, grading plans will verify the site elevation and, if necessary, raise any low portions of the site to 10 feet above NGVD (1 foot above FEMA 100-year floodplain).
Surface Water Quality	**APM 7.6a**. Because the project will cover an area greater than 5 acres, PG&E CO. will comply with the requirements of the State Water Resources Control Board General NPDES Permit for storm water runoff associated with construction activities ("general permit"). The State's general permit outlines requirements for filing a Notice of Intent prior to construction, and for developing a SWPPP that outlines "best management practices" to control discharges from the construction area. The SWPPP for this project will be prepared following guidance of the State Water Resources Control Board and will cover all construction areas. It will present practices used routinely by PG&E CO. to prevent sediment generated during grading and drilling activities from entering storm drains. The SWPPP will outline a variety of procedures accepted by regulatory agencies as successful for minimizing the impact of construction on surface water quality. PG&E CO. will prepare and submit an NPDES Erosion Control Plan to provide construction protocols that minimize the effects (e.g., erosion, turbidity, and water quality) of any discharges generated during construction activities associated with this project. Anticipated provisions of the plan include the following: • Water displaced during construction activities will be handled to minimize erosion and turbidity effects on surface water. This may include the use of hay bales, siltation fences, and other measures. • Temporary staging of construction materials, equipment, and excavation spoils will be performed outside of drainages.
Groundwater	**APM 7.16a.** Prior to constructing the Newark Substation Modification, PG&E CO. will perform soil and/or groundwater testing in the former equipment storage area, and if contamination is found, will remediate the area as needed to meet requirements of regulatory agencies. **APM 7.17a**. Prior to construction of the proposed Los Esteros Substation, PG&E CO. will test soil and/or groundwater on the property to identify the potential presence of hazardous materials. If chemical or petroleum residues are found to be present, PG&E CO. will remediate the site under the direction of the RWQCB and SCVWD prior to construction of the substation. **APM 7.18a.** Prior to construction in areas with known or suspected contamination, PG&E CO. will drill a pilot boring to test soil and/or groundwater where grading or subgrade construction is planned. PG&E CO. will use this information to plan construction activities appropriately. In areas with known or suspected shallow soil or groundwater contamination, standard construction procedures will be followed to protect workers and prevent spreading contamination to deeper zones. The RWQCB has developed guidelines for driving piles through landfills that also apply to areas of shallow groundwater contamination. PG&E CO. will follow these guidelines, or a similar protective procedure approved by RWQCB, for transmission towers built on the landfills or in other areas where shallow contamination is found. This may involve installing a conductor casing outside of the piles to seal off the shallow contaminated zone. If drilled piers are needed in areas with shallow contamination, soil cuttings and dewatering fluids will be tested and disposed of appropriately. Workers might be required to wear personal protective gear and receive special health and safety training. Public access to the construction area may be temporarily restricted during excavation or drilling activities. PG&E CO. will complete work in compliance with applicable federal, state, and local regulations.

C.6.2.4 Proposed 230kV Transmission Line Route (with Newark Substation Modifications)

Surface Water Hydrology

As described above in Section C.6.1.2.1, the proposed 230kV route would cross the Warm Springs Seasonal Wetland, Cargill Salt Ponds A22 and A23, Laguna Creek, Coyote Creek, and several sludge drying ponds of the WPCP. The proposed route would not significantly impact the surface water hydrology of the creeks, salt ponds, and sludge drying ponds. Impacts to the wetland are discussed in Section C.3, Biological Resources.

The proposed route offers no significant long-term impacts regarding an increase or intensification of the existing flood conditions in the project area. Between Mileposts 1.5 and 2.7 and Mileposts 4.1 and 5.1, eight towers will be built in the 100-year Flood Zone A1, (el. 9') shown in Figure C.6-2. Flood hazards in this bayland area are primarily tidal and low energy. Therefore, the existence of towers shall neither contribute to increased flood heights nor cause a significant increase in erosive processes within the flood zone. All towers would be constructed to withstand the impacts of predicted floodwaters of a 100-year storm. The remainder of the tower locations are located in Flood Zones B or C and will not impact flood conditions.

Towers would not be constructed on flood control levees or dikes, or at locations that would impact levee and dike maintenance.

Impact 1: Potential for tower construction activities to impact surface water hydrology. It is anticipated that construction activities in Salt Ponds A22 and A23 will be conducted during the late summer season (August-October) when the ground surface is dry enough (water depth less than 2 ft) to be accessed by crane. Wood mats will be used to support the crane and other construction equipment in the salt ponds. If tower construction in salt ponds A22 and A23 occurs in the wet season, and/or water depths are greater than 3.5 ft, alternative construction methods would be used that employ a barge rather than a land-based crane (see description of construction methods, Section B.3).

Tower locations at Mileposts 5.6, 6.7, and 7.0 will be built within the sludge drying ponds of the WPCP, while the towers located at approximate Mileposts 5.8, 6.1, 6.3, and 6.9 will be built on top of the berms that separate the drying ponds. Construction activities at the WPCP would be similar to those at the salt ponds.

The construction of towers in Cargill Salt Ponds A22 and A23 and at the WPCP will not result in long-term significant impacts on surface water hydrology, although temporary and localized impacts affecting surface water drainage could result. The disturbance of levees, dikes, berms, and natural drainage channels could occur through tower construction activities. Such disturbances could have a significant impact on surface water hydrology, although these impacts are avoidable through the

implementation of Mitigation Measure H-1 rendering them as non-significant (**Class II**) (this measure supercedes APM 7.2a).

H-1 During all construction activities in salt ponds A22 and A23 (both proposed and westerly alternative routes) and salt ponds A18 and A19 (westerly alternative only), PG&E Co. will preserve the integrity of levees, dikes, Cargill's existing dredge locks, and natural drainage patterns. PG&E Co. will repair any damage to the dikes at dredge locks while accessing the salt ponds using techniques similar to those employed by Cargill during their routine dike maintenance. Construction activities in Salt Ponds A22 and A23, and A18, will be limited to the dry season (between April 15 and October 15). If PG&E Co. requests deviation from dry season construction for salt pond construction, a request shall be submitted to the CPUC for approval. The request shall include documentation regarding avoidance of potential impacts and justification for the requested deviation. (Supercedes APM 7.2a)

Impact 2: Impact of Newark Substation modification on surface water hydrology. The modification of the southern portion of the Newark Substation would take place within the existing footprint of the substation in an area that is already paved. No impacts to surface water hydrology would result.

Surface Water Quality

Impact 3: Construction related sediment loading. During construction of the 230kV transmission line, adverse surface water quality impacts due to sediment loading of excavated spoils could occur in creeks and wetlands adjacent to the construction area or immediately downstream. Tower construction activities that include excavation, backfilling, excess soil disposal, and topsoil handling and replacement are likely to generate sediment. In particular, excavation activities needed to prepare the concrete foundations for the towers will bring mud, salt, and water to the surface. The potential for excavated spoils to enter the surface water drainage network is greatest near creek crossings, wetlands, and at the salt ponds. The potential for construction related sediment and excavated spoils to enter the surface water drainage network represents a significant water quality impact. This sediment loading impact can be reduced to a non-significant level through the application of Mitigation Measure H-2 (**Class II**) (this measure supercedes APM 7.6a).

H-2 Construction-induced sediment and excavated spoils shall be managed in accordance with the requirements of the State Water Resources Control Board General NPDES Permit for storm water runoff associated with construction activities ("general permit"). The State's general permit outlines requirements for filing a Notice of Intent prior to construction, and for developing a SWPPP that outlines "best management practices" to control discharges from the construction area. The Storm Water Pollution Prevention Plan (SWPPP) shall be designed specifically for the hydrologic setting of the proposed project, which includes salt ponds, wetlands, creeks, sloughs, and sludge drying beds.

In compliance with this measure and the NPDES Permit, an Erosion Control Plan (ECP) shall be developed to prevent the runoff of construction related and excavated materials into the drainage system. The ECP shall require that:

- Excavated or disturbed soil, salt, or mud shall be temporarily collected and placed in a controlled area surrounded by siltation fencing, hay bales, or a similarly effective erosion control technique that prevents the transport of sediment
- The staging of construction materials, equipment, and excavation spoils will be performed outside of drainages
- Where tower construction activities occur near a creek, channel, or slough crossing, sediment containment methods shall be performed at least 100 feet from the channel
- Upon completion of construction activities, excavated soil would be replaced and graded to match the surroundings
- Surplus soil would be transported from the site and disposed of appropriately. (Supercedes APM 7.6a).

Impact 4: Construction related turbidity in the salt ponds. If the construction of transmission towers across the salt ponds occurs under wet conditions when water depth exceeds 3.5 feet, disturbance would increase turbidity locally. In areas where bottom sediments are disturbed, dissolved oxygen could decrease as organic materials in sediments are suspended in water and oxidized. However, the impacts of these activities are expected to be highly localized and temporary and are therefore considered less than significant (**Class III**).

Impact 5: Construction related surface water contamination. Construction of the proposed transmission lines would require the use of a variety of motorized heavy equipment, including trucks, cranes, dozers, air compressors, graders, backhoes, and drill rigs. This equipment requires job site replenishment of hazardous chemicals in the form of fuels, oils, and coolants. The accidental spill of these, or other, construction-related materials could lead to the discharge of contaminants into the drainage system. Conveyance of contaminants could take place either directly at the time of the spill or the contaminants could be held in storage until a runoff event delivered them to a water course. A chemical spill affecting a stream channel or wetland area would be a significant impact (**Class II**). However, Mitigation Measures H-2 (described above), in addition to Mitigation Measures H-3 and H-4 (described below), would reduce the impact of spilled and transported contaminants to a less than significant level. These mitigation measures should prevent contaminated water from exiting the construction site and entering into the drainage system.

H-3 All refueling and lubrication activities shall be performed at least 100 feet from any stream.

H-4 The Applicant shall develop Best Management Practices (BMPs) as part of the requirements for a National Pollutant Discharge Elimination System (NPDES) permit by the State Water

Resources Control Board. BMPs shall be approved by the CPUC, Regional Water Quality Control Board, and affected public agencies prior to permit issuance. They will be modified as necessary during construction to minimize the possibility of contaminated discharge into surface waters. Any spill occurring during construction activities shall be contained and immediately cleaned up.

Impact 6: Newark Substation modifications and surface water quality. Modifications at the Newark Substation would result in no impacts to surface water quality as the construction and operation of the Newark Substation modification would occur within the existing substation footprint.

Groundwater Hydrology

Impact 7: Transmission tower foundations and groundwater hydrology. A single drilled pier or a grouping of four to nine piles would support each tower footing for the transmission line. If piles are used, they may be 1 to 2 feet in diameter, and from 50 to 100 feet deep. If piers are used, they may be 2 to 5 feet in diameter and up to approximately 30 feet deep. Groundwater depth along the proposed route is shallow, from 5 to 20 feet below the ground surface. Across the wetlands and salt ponds towards the bay, groundwater depth may be even shallower. Therefore, subgrade foundations, piers, and piles would penetrate into groundwater at some locations. Since the footprint of each foundation is quite small relative to the size of the groundwater body, impacts to groundwater hydrology will not be significant (**Class III**).

Impact 8: Construction of tower foundations and groundwater hydrology. During pier/pile construction for the transmission tower foundations, PG&E Co. may pump groundwater to dewater the excavation. Dewatering is expected to last 1 to 2 days at each pier location. Pumped water would be disposed of according to the SWPPP. Although minor short-term localized changes (e.g. drawdown) in groundwater flow could occur as a result of dewatering during drilled pier construction, impacts would be temporary and less than significant (**Class III**).

Impact 9: Newark Substation modification and groundwater hydrology. At the Newark Substation, groundwater is used for fire protection. The proposed modification should not impact groundwater hydrology because the rate of use is not expected to change as a result of the proposed modification.

Groundwater Quality

Impact 10: Newark Substation modification and groundwater quality. Because PG&E Co. has used a portion of the Newark Substation modification area to store electrical equipment for 30 years and because groundwater is shallow in the project area, there is a potential for chemicals to be present in the soil and groundwater. If chemical residues are present, subsurface construction activities could spread the residues to soil and into the groundwater. Implementation of Mitigation Measure H-5 would reduce this potential impact to a less than significant level (**Class II**) (supercedes APM 7.16a).

H-5 Prior to construction of the Newark Substation modification, PG&E Co. will perform soil and/or groundwater testing in the former equipment storage area and in the immediate construction location to a depth that represents construction activity. If soil and/or groundwater contamination is found, PG&E Co. shall remediate the area as needed to meet requirements of the governing agencies. A report shall be provided to the CPUC prior to the start of substation construction documenting completed tests and results. (Supercedes APM 7.16a.)

Impact 11: Cross-contamination from construction of transmission tower footings. Groundwater quality in the project area could be significantly impacted if piles or drilled piers for tower foundations penetrated areas with pre-existing soil or water quality impacts and created a cross-connection to deeper groundwater zones. Likewise, groundwater quality could be significantly impacted if surface contaminants, either from soil or construction related materials, were to invade excavations that had intruded into shallow groundwater bodies. The application of Mitigation Measures H-6, as well as Mitigation Measures H-2, H-3, and H-4, would reduce potential impacts to a less than significant level (**Class II**). Mitigation Measure H-6 supercedes APM 7.17a and 7.18a.

H-6 Prior to construction, the applicant shall research the potential for known or suspected soil or groundwater contamination along the approved transmission line route and on the selected 230kV substation site. In areas of known or suspected contamination where construction activities shall occur, the applicant shall drill pilot borings to test the soil and/or groundwater for contaminants. A report shall be submitted to the CPUC and the RWQCB documenting the findings of these tests.

PG&E Co. shall follow the guidelines of the RWQCB for driving piles through landfills, or a similar protective procedure if approved before the start of construction by RWQCB and the CPUC, for transmission towers built on areas where shallow contamination is found. Protective measures may involve installing a conductor casing outside of the piles to seal off the shallow contaminated zone. If drilled piers are needed in areas with shallow contamination, soil cuttings and dewatering fluids will be tested and disposed of appropriately. Workers might be required to wear personal protective gear and receive special health and safety training. Public access to the construction area may be temporarily restricted during excavation or drilling activities. Specific protective measures shall be defined in a letter to the CPUC prior to the start of construction and after completion of testing. The applicant will complete this work in compliance with applicable federal, state, and local regulations. (Supercedes APM 7.18a.)

C.6.2.5 Proposed Los Esteros Substation and 115 kV Lines

Surface Water Hydrology

Impact 12: Flood impact at Los Esteros Substation. Although it is on the floodplain near Coyote Creek, the proposed Los Esteros Substation is located above the 100-year flood elevation in Flood Zone B (Figure C.6-2). Therefore, the potential for flood related impacts associated with Coyote Creek are less than significant (**Class III**). However, due to the proximity of the site to Coyote Creek, the Applicant shall apply Mitigation Measure H-7 (superceding APM 7.4a) to verify the site's Flood Zone classification. Surface water hydrology in the other creeks, sloughs, salt ponds, and wetlands described within the entire project area would not be impacted by the construction or operation of the proposed substation. An extremely intense precipitation event may cause some localized sheetflow runoff to be diverted around the proposed substation, but this impact is not considered significant.

H-7 Prior to construction, the applicant shall check grading plans and surveys of the proposed site to verify that the ground surface of the proposed substation shall be at least at elevation 10 feet above NGVD (Flood Zone B, 1 ft above the FEMA 100-year floodplain). This research shall be provided to the CPUC in the form of a letter report prior to the start of substation construction. If any portion of the site is below elevation 10 feet, it shall be raised. (Supercedes APM 7.4a.)

Impact 13: Increased runoff at proposed substation. Development of the proposed Los Esteros Substation requires that 40 percent of the 23-acre site (about 9 acres) would be covered in concrete or asphalt with the remaining 14 acres covered with gravel. The conversion of the site's surface cover from the existing compound of greenhouses, agricultural facilities, and small dwellings to a combination of concrete, asphalt, and gravel will likely increase the overall imperviousness of the site. Increased imperviousness would generate increased runoff. Estimated runoff within the site from a 25-year storm is 60 cfs. Implementation of floodwater diversion measures described in Mitigation Measure H-8 would reduce on-site runoff generation to a less than significant level (**Class II**).

H-8 A spill prevention containment and countermeasure (SPCC) pond will be designed to collect all runoff from the approved substation. For the proposed Los Esteros Substation, surface drains and subsurface piping will convey runoff to the lined SPCC pond near the northwest corner of the property. Depending upon the magnitude of the runoff event and climatic conditions, water collected in the SPCC pond would evaporate onsite or be inspected prior to releasing. Draining from the SPCC pond, flow would then pass through an oil/water separator to a pipe and ditch, which leads flow out of the area northwest of the substation. The ditch would convey the water north and west toward Coyote Creek and San Francisco Bay. The ditch would be lined with concrete or riprap at the pipe discharge area to dissipate energy and prevent erosion. Water held in the SPCC pond shall be tested for contaminant levels prior to its release. If contaminated water is allowed to evaporate in the pond, then the

pond lining shall be inspected and cleaned according to standard procedure prior to subsequent runoff events.

Impact 14: Water use at proposed Los Esteros Substation. The only post-construction demand for water would be for domestic use by PG&E Co. personnel who would occasionally use the substation during the day. Potable water for drinking and restroom use would likely be supplied from water lines along Zanker Road. Wastewater discharge would be via a sewer line connection to existing lines along Zanker Road. These water-use related impacts at the proposed substation would be adverse but not significant (**Class III**).

Surface Water Quality

Impact 15: Construction related erosion and sediment transport at the proposed Los Esteros Substation. The demolition, scraping, grading, and construction activities required to build the Los Esteros Substation could generate local erosion leading to the transport of sediment from the site into the drainage network. Such sediment generation is considered a significant impact, but the application of Mitigation Measures H-2 and H-8 would reduce this impact to a non-significant level (**Class II**).

Impact 16: Construction related surface water contamination at the proposed Los Esteros Substation. Construction of the proposed Los Esteros Substation would require the use of a variety of motorized heavy equipment utilizing hazardous chemicals in the form of fuels, oils, and coolants. The potential exists for an accidental spill of any of these chemicals. These contaminants could flow into waterways at the time of spill, or be carried by surface flow during rainy conditions. A chemical spill affecting a stream channel or wetland area would be a significant impact. The coordination of construction activities with Mitigation Measures H-2 (an appropriate site specific SWPPP and ECP), H-4 (construction site BMPs), and H-8 (creation of an SPCC pond) should prevent contaminated water from exiting the construction site and entering into the drainage system. An effective mitigation plan that integrates an SWPPP, ECP, and SPCC pond would make the potential impact of spilled and transported contaminants less than significant (**Class II**).

Impact 17: Operation of proposed substation and surface water quality. Future operation of the proposed Los Esteros Substation could result in the release of fuels and oil thereby creating a significant surface water quality impact (**Class II**). Implementation of a spill prevention containment and countermeasure (SPCC) pond as described in Mitigation Measure H-8 would reduce potential surface water quality impacts to less than significant levels (**Class II**).

Groundwater Hydrology

Impact 18: Abandonment of groundwater wells at proposed Los Esteros Substation. Currently, two non-permitted water wells are used for agricultural purposes by the current property owner. These two wells may be temporarily used during the construction of the Los Esteros Substation. After

construction, the wells would be abandoned in accordance with California Department of Water Resources and SCVWD requirements. Therefore, in the long-term groundwater withdrawal from the property will be reduced. This is potentially a beneficial impact (**Class IV**).

Impact 19: Reduced percolation at proposed Los Esteros Substation. The creation of impervious surfaces at the substation site may reduce percolation of surface water to the water table below. Since most of the site would remain unpaved and the site is relatively small in terms of contribution to groundwater, this impact is less than significant (**Class III**).

Groundwater Quality

Impact 20: Historical groundwater contamination at proposed substation. The historical agricultural land use of the proposed substation site has involved the use of pesticides, fertilizers and other chemicals. These materials may currently be present in the soil and/or groundwater. Construction activities could expose contaminated soil and also introduce construction related materials like fuels and oil. Grading and foundation work could spread contaminants horizontally across the soil layer and also link areas with pre-existing soil or water quality impacts to deeper groundwater zones. The potential for cross-contamination is even greater during the construction of deep tower foundations for the four 115 kV lines exiting the Los Esteros Substation. The application of Mitigation Measures H-5 and H-6 at the Los Esteros Substation would reduce this groundwater quality impact to a less than significant level (**Class II**).

Impact 21: Contamination of groundwater due to construction and operation of proposed substation. Groundwater quality could be impacted if construction related contaminants of fuels and oil were to invade excavations that had intruded into shallow groundwater bodies. Likewise, groundwater quality could be impacted during future operation of the proposed substation if an unusual release of oil from oil-filled equipment were large enough and sustained enough to reach groundwater. The application of Mitigation Measures H-4 and H-8 at the Los Esteros Substation would reduce this groundwater quality impact to a less than significant level (**Class II**).

C.6.2.6 Proposed Trimble-Montague 115 kV Upgrade

Surface Water Hydrology

Impact 22: Proposed Trimble-Montague 115 kV Upgrade and surface water hydrology. The construction of the proposed Trimble-Montague 115 kV Upgrade involves a 1.4 mi long 115 kV transmission line, which parallels Trimble Road and the Montague Expressway (Figure B.2-1). This route would pass over Coyote Creek but would not impact the creek. Most of the route lies in Flood Zone B (Figure C.6-2), with a smaller portion in Flood Zone A. None of the existing or planned power poles on this route are located in or on waterways, ditches, levees, or dikes. New poles would be installed to withstand predicted 100-year flood conditions. Construction of the new tubular steel

towers in place of existing wood poles would not impact surface water hydrology. By implementing Mitigation Measure H-2 and a SWPPP in accordance with state regulations and guidelines, no significant impacts would result (**Class II**).

Surface Water Quality

Impact 23: Construction of Trimble-Montague Upgrade and sediment transport. Excavation and drilling during construction of the new tubular steel towers could generate some sediment, which could impact local drainages (**Class II**). By implementing the SWPPP and ECP described in Mitigation Measure H-2, no significant impacts would result.

Groundwater Hydrology

Impact 24: Trimble-Montague Upgrade and groundwater hydrology. Construction and operation of the new Montague-Trimble power line would not significantly impact groundwater hydrology because new power poles would replace old poles in the same locations, although the new footings may be deeper than the existing conditions. Two water supply wells were identified by the SCVWD near the proposed alignment. Construction and operation of the proposed power line should not have a significant impact upon the groundwater hydrology of these wells (**Class III**).

Groundwater Quality

Impact 25: Trimble-Montague Upgrade and groundwater quality. There are no known soil or water quality degradation problems along the route. However, there is the potential for construction related contaminants to enter excavations that intrude into shallow groundwater bodies. This impact could be significant, but as in the construction of the 230kV Transmission Line and the proposed Los Esteros Substation, this impact will be avoided through the application of Mitigation Measures H-2 and H-4 (**Class II**).

C.6.2.7 Cumulative Impacts and Mitigation Measures

Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts reflect the overall change in the environment, which results from the incremental impact of the project when added to other closely related projects (CEQA Guidelines Sec. 15355).

Additional projects that are scheduled to be built in the project area are discussed in Section B.8 and summarized in Table B.8-1. Impacts from these projects that could generate cumulative hydrological impacts with the proposed project are related to construction activities and locally increased runoff due to the increase of impervious surfaces. The type and size of the proposed projects listed in Table B.8-1 reveals that the project region is an area of rapid industrial and commercial expansion. The larger

project sites, including sites 1, 2, 11, 12, and 13, average over 135 acres in size and occur in areas previously undeveloped. As seen in the aerial photo (Figure B.8-1), these larger project sites are found bayward of the bulk of existing development. The replacement of these relatively undeveloped parcels with office-park type developments would result in increased stormflow related runoff. Increased runoff generated by the proposed Los Esteros Substation contributes to this cumulative impact but is reduced in significance through the application of Mitigation Measure H-8. The projects listed in Table B.10-1 will also most likely have drainage plans to reduce stormflow peaks. Project site 13, the southward extension of the Bayside Business Park into the old Fremont Airport site is the one scheduled project that most directly interacts with the proposed Transmission Line route. Cumulative impacts related to construction activities that cause erosion, sediment transport, and surface water/groundwater contamination are potentially significant. Mitigation Measures H-2, H-4, and H-6 shall reduce the impact contribution from the proposed project to a less than significant level (**Class II**).

C.6.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: ALTERNATIVES

C.6.3.1 Underground Through Business Park (UTBP)

The Underground Through Business Park (UTBP) Alternative is identical to the proposed route until MP 1.8 where the UTBP route turns more southeasterly towards the Bayside Business Park. Transition structures at the northeastern margin of the Business Park would direct the 230kV lines beneath ground. Whereas the aboveground proposed route follows along the western edge of the Business Park, the underground alternative takes a more easterly path through the business park following an already existing 115kV transmission line right of way (Figure B.6-1). The UTBP Alternative surfaces at the southern end of the Business Park through transition structures and rejoins the proposed route at MP 4.3. Because the UTBP is identical to the proposed route north of MP 1.8 and south of MP 4.3, it shares the same impacts as described above in Section C.6.2 for those areas.

There are additional potential impacts to surface water and groundwater hydrology and water quality specifically related to the UTBP Alternative. Construction of the underground route requires the excavation of two 6 to 7 ft deep trenches, one on either side of the existing 115kV transmission lines through the roughly 8000-8500 ft distance of the Business Park. Construction techniques for underground transmission lines are described in detail in the Applicant's Response to Data Request (ARDR 1-1, 10/28/98). The excavation of this abundant amount of earth material could lead to the transport of sediment into the local drainage system. The application of Mitigation Measure H-2 would reduce this impact to a less than significant level (**Class II**) and would likely result in the removal of all spoils to an off-site location as suggested in the trenching description (ARDR 1-1, 10/28/98). Water contamination impacts due to potential fuel spills, machinery operation, and trenching could have a significant impact but are avoidable through Mitigation Measures H-2, H-3, and H-4.

Potential impacts to groundwater are significant considering the length of the trenching activities and the shallow depth to groundwater. Groundwater contact in the project region occurs on average

between 5 and 20 ft below the surface in the project area. Depending upon runoff/recharge conditions, tidal conditions, and proximity to the bay, the depth to groundwater may even be shallower than 5 ft. Since trenching practices typically are 6 to 7 ft deep, the potential for direct groundwater contact across the length of the trench represents a significant impact to groundwater hydrology. The application of Mitigation Measure H-9 would reduce this impact to a less than significant level (**Class II**).

H-9 Groundwater levels along the UTBP shall be tested by drilling pilot borings performed at 1,000-foot intervals along this route during high water tidal conditions. The location of places where groundwater depth is less than 6 ft shall be identified prior to trenching activities and avoided, where possible, for the underground route. Where avoidance is not possible, PG&E Co. shall consider construction in a shallower trench, depending upon structural requirements of the underground method and other practical concerns. PG&E Co. shall document results of test drilling in a letter report to the CPUC and shall propose specific means to minimize the impact on groundwater if shallow groundwater is found. These measures must be approved by the CPUC prior to the start of construction of the underground segment.

Potential impacts to groundwater hydrology either due to historical land-uses or construction-related contamination would be significant, yet could be reduced to a less than significant level through the application of Mitigation Measure H-6.

Surface water impacts associated with the UTBP Alternative are not effectively greater in magnitude than those impacts caused by the proposed overhead route. In contrast, impacts to groundwater hydrology and water quality are potentially greater with the UTBP Alternative. In terms of groundwater, one advantage of the UTBP Alternative over the proposed route is the avoidance of the deep foundation drilling for the nine towers between MP 2.7 and 4.1. However, the overall impacts associated with the underground route would be greater than the tower construction activities because of the required length of the continuous trenching.

C.6.3.2 I-880-A Alternative

The I-880-A Alternative differs from the proposed route only north of MP 2.7, where a more easterly alignment near the I-880 freeway keeps most of this alternative route out of the future expanded area of the San Francisco Bay National Wildlife Refuge (Figure B.6-2). In staying to the east, the I-880-A Alternative avoids the Warm Springs Seasonal Wetland; this represents an advantage of this alternative. Otherwise, the I-880-A Alternative is nearly identical to the proposed route in terms of impacts to hydrology and water quality. The I-880-A Alternative crosses the same surface water and groundwater bodies (although the crossing of Salt Ponds A22 and A23 occurs slightly east of the proposed route) and involves the identical construction practices as the proposed route. As such, the significant impacts caused by the I-880-A Alternative are nearly identical to those described for the proposed route and are reduced to non-significant levels through Mitigation Measures H-1 to H-8 described above.

C.6.3.3 I-880-B Alternative

The I-880-B Alternative is identical to the I-880-A Alternative north of Cushing Road (Figure B.6-3). The I-880-B Alternative then heads east along Cushing Road and then turns south and parallels the I-880 freeway eventually joining the proposed route at MP 4.3. The I-880-B Alternative avoids passing through the Warm Springs Seasonal Wetland and Salt Ponds A22 and A23 thus eliminating potential hydrologic impacts in these areas. The I-880-B Alternative crosses Laguna Creek further north of the proposed route's crossing at a location where the channel is smaller and tidal influence is less pronounced. This different Laguna Creek crossing location does not represent any significant difference between this alternative and the Proposed Route.

One potentially significant difference between the proposed route and the I-880-B Alternative is where the latter route parallels the I-880 freeway south of Gateway Boulevard. In this area, the I-880 Alternative is just west of the Fremont Flood Control Channel. Since a final design for this alternative has not been decided, it is uncertain how close to the channel the Alternative's right of way will be located. The positioning of tower footings on the immediate overbank area, channel banks, or on the levees of this flood control channel would represent a significant impact that is avoidable through Mitigation Measure H-10 (**Class II**).

H-10 Tower footings along the I-880-B Alternative shall not encroach more than 50 ft upon the Fremont Flood Control Channel.

Construction of tower footings along the I-880-B Alternative route could generate sediment transport and contamination into the adjacent Fremont Flood Control Channel. This would represent a significant water quality impact. The severity of this impact could be reduced to a less than significant level (**Class II**) through the application of Mitigation Measures H-2, H-3, H-4, and H-10.

C.6.3.4 Westerly Route Alternative

The differences in alignment between the Westerly Route Alternative and the proposed route are illustrated in Figure B.6-1. North of MP 2.2, the proposed and Westerly Alternative routes are identical. Both the proposed and Westerly Alternative routes cross through salt ponds A23 and A22. South of MP 2.2, and particularly south of MP 2.8, the Westerly Route Alternative heads more directly southward. The proposed route avoids the Wetland Mitigation Pond by heading southeastward after MP 2.2 and traveling through the Business Park. In contrast, the Westerly Route Alternative enters the Wetland Mitigation Pond and requires a tower location in this wetland at MP 2.8. Heading south, the Westerly Alternative then crosses a tributary of Mud Slough, Salt Pond A19, Coyote Creek, Newby Island Landfill, Coyote Creek Flood Bypass, and Salt Pond A18 before following Zanker Road through the WPCP to the proposed Los Esteros Substation site. In contrast, the proposed route only crosses

Coyote Creek and the WPCP sludge drying ponds between the Business Park and the Los Esteros Substation site.

The alignment of the Westerly Route Alternative directly impacts several more water bodies than the proposed route. Therefore, the Westerly Route Alternative is a less desirable alternative than the proposed route.

Surface Water Hydrology

Depth of water in salt ponds A18 and A19 is greater than at salt ponds A22 and A23. Therefore, the construction of tower footings in salt ponds A18 and A19 for the Westerly Route Alternative will require wet construction techniques, which could have a significant impact on surface water hydrology in the Salt Ponds (**Class II**). Mitigation Measure H-1 could reduce the level of impact in Salt Ponds A22, A23, and A18 to a less than significant level by requiring construction during dry conditions.

Construction of the angled tower structure at MP 2.8 involves the use of a sectioned barge to transport the crane to the tower location. Barge transport will occur during high tide and will follow the meandering course of one of the mitigation ponds tidal channels. Depending on tidal regime, depth of water, and how much the barge drags along the marsh surface of the banks of the tidal channel, this activity could destabilize the banks of the tidal channel thus significantly impacting the hydrology of the mitigation pond. Therefore, construction activities of the angled tower structure in the mitigation pond are considered significant and unavoidable (**Class I**).

Construction is Salt Pond A19 would occur under wet conditions, representing a significant construction impact on surface water hydrology (**Class I)**. Tower construction in this Salt Pond would affect geomorphic form and resulting hydrology of the Coyote Creek channel. To allow barge access to the Salt Pond A19 pond, a temporary levee would be constructed at Cargill's existing dredge lock, which is located on the Coyote Creek dike. During construction, this levee would temporarily decrease the width of the Coyote Creek flood channel and increase the area of Salt Pond A19. The bottom of the flood channel would be disturbed during dredging activities required to create the temporary levee. When the temporary levee is removed, excavated soils would be replaced, and the bottom of the channel over time would resume its original shape by natural sedimentation. The salt evaporation ponds do not experience tidal influence, and project impacts will be similar to those used during Cargill's routine dredging activities required to maintain the dikes around its pond system. In the short-term, these activities represent a non-mitigable significant impact to the drainage network (**Class I)**. However, in the longer term, these impacts to the Coyote Creek channel would be reduced by geomorphic recovery processes which would return the channel towards a pre-disturbance channel form.

Although there are no significant flood related impacts associated with tower construction, the Westerly Route Alternative does represent a far greater presence on the 100-year floodplain (FEMA Flood Zone A, Figure C.6-2) than the proposed route, which occupies Flood Zone B for much of its course.

Surface Water Quality

Each of the surface water quality impacts described above for the proposed route are also applicable for the Westerly Route Alternative. Impact 3 (related to sediment loading), Impact 4 (related to turbidity in the Salt Ponds), and Impact 5 (related to construction-related contamination) each represent significant impacts that are reduced in severity to non-significant levels (**Class II**) by Mitigation Measures H-2, H-3, and H-4. However, the scale of impact is a key distinction between assessing the potential magnitude of these water quality impacts for the two different routes. Since the Westerly Route Alternative crosses more water bodies (including more salt ponds, creek crossings, and wetlands) the likelihood for Impacts 3, 4, and 5 to become significant becomes greater while the relative effectiveness of Mitigation Measures H-2, H-3, and H-4 decreases.

Groundwater Hydrology

Impacts to groundwater hydrology for the Westerly Route Alternative are the same as those described above for the proposed route. Impacts 8, 9, and 10 are temporary in nature (**Class III**) and would not represent a lasting significant impact for the Westerly Route Alternative. One distinction in terms of groundwater hydrology is that the depth to groundwater along the Westerly Route Alternative is shallower compared to the proposed route because the Westerly Route alignment is nearer the bay. This feature does not raise the level of significance of these impacts to groundwater hydrology.

Groundwater Quality

Impact 12, which refers to the degradation of groundwater quality from cross-contamination processes during tower construction, is also directly applicable to the Westerly Route Alternative. The drilling and penetration of piles or piers into areas with pre-existing soil or water quality impacts, or the potential for construction related contaminants to enter deeper groundwater zones, pose a significant impact to groundwater quality. The fact that groundwater depth is shallower along the Westerly Route Alternative than the proposed route increases the likelihood for significant impacts. Along the Westerly Route, piles and piers will penetrate further into groundwater than the proposed route. The potential for spilled or construction related contaminants to reach groundwater is greater for the Westerly Route because travel time will be less than the proposed route. As described above, the application of Mitigation Measures H-6 and H-2 should reduce potential impacts to a less than significant level (**Class II**).

C.6.3.5 Westerly Upgrade Alternative

The Westerly Upgrade Alternative replaces two existing 115kV lines, which pass through the existing power line corridor just west of the Westerly Route Alternative (Figure B.6-5), with two new double circuit 230 kV lines. In terms of hydrology, this alternative generates very similar qualitative impacts to those caused by the Westerly Route described above. However, since the Westerly Upgrade Alternative involves two 230 kV lines rather than one, the potential for significant construction related impacts is quantitatively greater than for the Westerly Route Alternative. The advantage of the Westerly Upgrade Alternative is found in its increased capacity, which may prevent the need for additional future construction across the water bodies of the project area.

C.6.3.6 Substation Alternatives

C.6.3.6.1 *Northern Receiving Substation Alternative*

The Northern Receiving Substation (NRS) represents an alternative location to the proposed Los Esteros Substation located at MP 7.2 of the proposed route. The NRS Alternative requires an additional 4.4 mile extension of 230 kV transmission line from MP 7.0 of the proposed route to reach the NRS site off of Lafayette Street in the City of Santa Clara (Figure B.6-1).

In terms of hydrology, many of the principal on-site impacts associated with the construction and operation of a substation are similar for both the proposed Los Esteros and NRS Alternative locations. Both substations would have significant impacts related to increased imperviousness, increased runoff, sediment transport, and potential contamination, which are reduced to less than significant levels through the application of Mitigation Measures H-2, H-4, H-5, H-6, and H-8.

Whereas many of the on-site impacts are similar, an important distinction between the NRS Alternative and the proposed Los Esteros Alternative is found in the 4.4 mile transmission line extension required for the NRS Alternative. To reach the Lafayette Street NRS site, the NRS transmission line route would cross the Guadalupe River south of Alviso. This crossing would require tower locations in the marsh in the east and west overbank areas of the Guadalupe River north of SR 237. Construction of towers in this tidal marsh would likely require techniques similar to those described for building the tower at MP 2.8 in the Wetland Mitigation Pond marsh along the Westerly Route Alternative. Access issues would likely be more favorable at the Guadalupe River Marsh near SR 237 than at MP 2.8 of the Westerly Route. Nonetheless, construction activities would result in significant impacts to the surface water hydrology of the marsh, including potential erosive impacts to tidal channels. In this light, the NRS Alternative is considered to have greater hydrologic impacts than the proposed Los Esteros Substation.

C.6.3.6.2 *Zanker Road Substation Alternative*

The Zanker Road Substation Alternative involves building a substation on a site between Zanker Road and Coyote Creek immediately south of the Santa Clara Valley Transportation Authority's (SCVTA) maintenance facility (Figure B.6-1). This alternative requires an additional 1-mile southward extension of the proposed Transmission Route. The hydrologic impacts associated with the construction and operation of the Zanker Road Substation are very similar to the impacts for proposed Los Esteros Substation, as both sites share a similar hydrologic setting on the floodplain (Zone B) west of Coyote Creek.

As explained above for the proposed substation site, past agricultural land-uses of the Los Esteros site have used chemicals that may have entered the soil and groundwater. Impacts to groundwater quality were addressed in Mitigation Measures H-5 and H-6. The Zanker Road Alternative site is currently undeveloped and not used for agricultural purposes. However, considering the regional land-use history of the region where floodplain sites were commonly used for agriculture, the potential for agricultural chemicals to be present in the soil or groundwater may exist. Mitigation Measures H-5 and H-6 shall also be applied to the Zanker Road Alternative to mitigate for agricultural related groundwater quality impacts.

An additional groundwater quality impact at the Zanker Road Alternative site is the potential for contamination as a result of maintenance operations at the SCVTA facility. The use of fuels, oils, lubricants, fire suppression, cleaning solvents, and other industrial materials at the SCVTA facility could have polluted the soil and groundwater beneath the adjacent Zanker Road site creating a significant impact. In addition to Mitigation Measures H-5 and H-6, Mitigation Measure H-11 shall be applied to the Zanker Road Alternative in order to reduce the impact to a less than significant level (**Class II**).

H-11 The history of operations at the SCVTA facility shall be reviewed for the known or suspected contribution of industrial contaminants to the soil and water beneath the facility. The ability for such potential pollutants to migrate to subsurface soil and water bodies beneath the Zanker Road site shall also be assessed, and a report documenting the findings of the pre-construction studies and the proposed remediation shall be submitted to the CPUC prior to the start of substation construction. Specific borings and samples shall be collected to test soil and groundwater quality on the Zanker Road site with particular emphasis along the northern boundary of the property towards the SCVTA facility. If contamination is found, the Applicant will remediate the area as needed to meet requirements of regulatory agencies

C.6.3.7 Trimble-Montague 115kV Upgrade Alternative

C.6.3.7.1 *Barber 115kv Alternative*

The Barber 115kV Alternative would replace the Trimble-Montague 115kV upgrade with a 115kV transmission line that exits the proposed Los Esteros Substation through the proposed four-circuit corridor, follows the existing Agnews 115kV line for about 1,900 ft and then turns east and crosses Coyote Creek and the creek's eastern floodplain before turning south along Barber Lane (Figure B.6-1). Compared to the proposed Trimble-Montague Upgrade Alternative, which requires 1.4 mi of new transmission line, the Barber Alternative requires 3.1 miles of transmission line. This greater length of transmission line for the Barber Alternative (and its associated towers) represents greater construction related impacts compared to the proposed project.

More specific to hydrology, the salient difference between the Barber Alternative and the proposed Trimble-Montague Upgrade Alternative is the location of the Coyote Creek crossing. In the case of the proposed Trimble-Montague Upgrade Alternative, the crossing of Coyote Creek will take place along the existing 115 kV transmission line corridor of the Montague Expressway. The new towers will be larger, require larger foundations than the existing towers, but will essentially follow an established electric corridor across the creek. In contrast, the Barber Alternative would require a new and additional downstream crossing of Coyote Creek at a location where the creek is wider than at the Montague Expressway. Additionally, the Barber Alternative would require crossing the eastern floodplain of Coyote Creek along a reach that is less developed than along the proposed Montague Expressway route. For these reasons, the Barber Alternative is considered to have greater hydrologic impacts than the proposed Trimble-Montague Upgrade Alternative.

C.6.3.7.2 *Underground Trimble-Montague 115kV Alternative*

The Underground Trimble-Montague Alternative follows the route of the above ground proposed Trimble-Montague Upgrade Alternative. The Underground Alternative would have similar impacts to those described above for the Underground Through Business Park Alternative (Section C.6.3.1). The impacts are primarily related to trenching operations, which can affect groundwater hydrology, increase the risk of groundwater contamination, and also increase sediment loading to surface streams. Mitigation Measures H-2, H-3, H-4, H-6, and H-9 addressed these impacts and lessened their significance.

An additional issue particular to the Underground Trimble-Montague Alternative is the underground crossing of Coyote Creek at the Montague Expressway. The potential exists for stream scour to expose the underground cable. This threat is dependent upon the geomorphic character of the stream, the nature of channel forming flows, and the depth of cable burial. Assigning a given depth of cable burial should not be done prior to a thorough examination of the range of channel forms expected for a certain design duration. Mitigation Measure H-12 is recommended to ensure that this impact is not significant.

H-12 The applicant shall consult with representatives from the Santa Clara Valley Water District (SCVWD) who have conducted the recent flood control project on Coyote Creek and assess potential scour depth on the reach of creek where the underground crossing is planned. This information shall be used by the Applicant to determine an appropriate burial depth for the underground transmission line.

C.6.4 THE NO PROJECT ALTERNATIVE

Under the No Project Alternative, construction of the proposed project would not occur. Direct impacts to water resources would not occur if the transmission lines and substation of the proposed project were not built. The selection of the No Project Alternative would necessitate a subsequent power generation or conveyance project to meet the growing electrical demands of the rapidly developing San Jose region. A subsequent electric project could likely have similar (or even more deleterious) impacts to those discussed above for the proposed project.

C.6.5 MITIGATION MONITORING PROGRAM

This section indicates that the proposed project (and Alternatives) may have significant impacts on the environment. In addition, some hydrological events and conditions could have significant impacts on the proposed project that would inhibit its successful and economic completion and operation. The foregoing sections recommend measures to mitigate these impacts, identify how these measures should be implemented, and who should ensure their effectiveness. Generally, the Applicant is responsible for implementing and financing the mitigation measures, and various Federal, State, and local governmental agencies are responsible for approving plans, for monitoring and implementing these plans, and for judging their effectiveness. The following table (Table C.6-3) summarizes the recommended mitigation measures, responsible monitoring agencies, and methods for monitoring implementation of the mitigation measures.

Table C.6-3 Mitigation Monitoring Program

Impact (Class)	Mitigation Measure	Location	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Proposed Project, Westerly Route, Westerly Upgrade, and I-880-A Alternatives						
6-1 Potential for tower construction activities to impact surface water hydrology (**Class II**)	**H-1** Natural drainage channels, levees, dikes, and dredge locks shall be preserved during construction activities in Salt Ponds. Construction in Salt Ponds A22, A23, and A18 shall occur during the dry season	Salt Ponds, Wetland Mitigation Pond, Warm Springs Seasonal Wetland, Creek crossings	Review construction, operation, and maintenance plan; monitor construction	Compliance with approved plan. Flow networks of existing streams, drainage channels, and tidal channels are not extensively altered	USACOE CDFG CBDC CPUC	Review monitoring plan prior to construction, inspect during construction
6-3 Construction related sediment loading (**Class II**)	**H-2** Construction induced sediment and excavated spoils shall be managed according to Best Management Practices, SWPPP and ECP plans. Sediment containment methods shall be performed at least 100 ft from any creek, channel, or slough.	All Proposed and Alternative construction sites	Review construction plans; monitor construction	Compliance with Best Management Practices, SWPPP, and ECP. Permits issued; inspections during construction show no significant impacts. Construction related sediment is prevented from reaching drainage network.	USACOE CDFG CBDC SWRCB RWQCB CPUC	Review plans and permits prior to construction, inpsect during construction
6-5 Construction related surface water contamination (**Class I**I)	**H-3** All fueling and lubrication activities shall be performed at least 100 ft from any creek, channel, or slough. **H-4** Best Management Practices shall be employed to minimize the possibility of contaminated discharge into surface waters; spills shall be cleaned up.	All Proposed and Alternative construction sites	Review construction plans; monitor construction	Compliance with Best Management Practices. Permits issued; inspections during construction show no significant impacts. Spills effectively cleaned up.	USACOE CDFG CBDC SWRCB RWQCB CPUC	During construction Review plans and permits prior to construction, inpsect during construction
6-10 Substation modification and groundwater quality (**Class II**)	**H-5** Soil and groundwater testing and if necessary, remediation and clean up	Newark Substation and Los Esteros Substation	Review testing results, review remediation and clean-up if necessary	Compliance with agency determined soil and groundwater quality standards	USACOE CDFG CBDC SWRCB RWQCB CPUC	Testing and (remediation if necessary) prior to construction

Table C.6-3 Mitigation Monitoring Program

Impact (Class)	Mitigation Measure	Location	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
6-11 Cross-contamination from construction of transmission tower footings (**Class II**)	**H-2**, **H-3**, and **H-4** above **H-6** Research potential for groundwater contamination along route. Soil and water testing in suspected or known areas of contamination. Use of a sealing conductor casing (or other method) on piles to prevent contamination. Appropriate disposal of contaminated soil and water	Proposed and Alternative transmission line routes and Los Esteros Substation site	Review historical research and testing results. Review and approve construction method in contaminated areas. Review disposal plan. Monitor construction activities.	Compliance with agency determined soil and groundwater quality standards. Compliance with approved construction plans and procedures. No cross-contamination between soil and groundwater strata occurs.	USACOE CDFG CBDC SWRCB RWQCB CPUC	Review and testing for contamination prior to construction; approved construction methods and disposal during construction
6-12 Flood impact at Los Esteros Substation (**Class III**)	**H-7** Verification of elevation of Proposed Substation above 10' (above 100-year floodplain)	Los Esteros Substation site	Field survey of site	Site is entirely (or partially) above or below elevation 10'	FEMA CPUC	Prior to construction
6.13 Increased runoff at proposed substation (**Class II**) **6-17** Operation of proposed substation and surface water quality (**Class II**)	**H-8** Spill prevention containment and countermeasure (SPCC) pond will be designed to collect all runoff from the approved substation	Los Esteros Substation site	Review (SPCC) construction, operation, and maintenance plan; monitor construction.	Compliance with approved plans. On-site runoff detention system and pond will be sized according to approved Best Management Practices*	SWRCB RWQCB CPUC	Review construction, operation, and maintenance plan prior to construction; monitor construction.
6-15 Construction related erosion and sediment transport at the proposed Los Esteros Substation (**Class II**) **6-16** Construction related surface water contamination at the proposed Los Esteros Substation (**Class II**)	**H-2** and **H-8** (see above)	Los Esteros Substation site	Review SWPPP, and ECP plans; monitor construction	Permits issued; inspections during construction show no significant impacts. Construction related sediment is prevented from reaching drainage network.		
6-20 Historical groundwater contamination at proposed Los Esteros Substation (**Class II**)	**H-5** and **H-6** (see above)	Los Esteros Substation Site				
6-21 Contamination of groundwater at proposed Los Esteros Substation (**Class II**)	**H-4** and **H-8** (see above)	Los Esteros Substation Site				

Table C.6-3 Mitigation Monitoring Program

Impact (Class)	Mitigation Measure	Location	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Proposed Trimble-Montague Upgrade Alternative						
6.22 Impact to surface water hydrology (**Class II**) **6-23** Impacts to local drainages from sediment generation during construction (**Class II)**	**H-2** (see above)	Proposed Trimble-Montague Upgrade Alternative				
6-25 Potential for construction related contaminants to enter excavations that intrude into shallow groundwater bodies, and impact groundwater quality (**Class II**)	**H-2** and **H-4** (see above)	Trimble-Montague Upgrade Alternative				
Underground Through Business Park Alternative						
Subsurface trenching and impacts to groundwater hydrology **(Class II**)	**H-9** Groundwater levels along trenching route shall be tested during higher high water tidal conditions **H-2, H-3, H-4** and **H-6** (above)	Bayside Business Park	Review results of testing	Locations where groundwater depth is shallower than 6' beneath surface shall be indicated and avoided for trenching purposes	SWRCB RWQCB CPUC	Review testing results prior to construction
I-880-B Alternative						
Impact to hydrology of Fremont Flood Control Channel **(Class II)**	**H-10** Tower footings along I-880-B Alternative shall not encroach more than 50 ft upon the Fremont Flood Control Channel **H-2, H-3, H-4** (above)	Adjacent to Freemont Flood Control Channel along I-880-B route	Review alignment of Alternative Route	Route footings are more than 50 ft from flood control channel	USACOE CDFG CPUC	Alignment reviewed during planning stage

Table C.6-3 Mitigation Monitoring Program

Impact (Class)	Mitigation Measure	Location	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Zanker Road Substation Alternative						
Groundwater quality impact of Zanker Road Alternative Site (**Class II)**	**H-11** Review of SCVTA operations and suspected contribution of industrial contaminants to subsurface, assess likelihood of contaminant migration beneath Zanker Substation site, test soil and water at Zanker Road site, remediate if necessary. **H-5** and **H-6** (above)	Zanker Road Substation Site	Review SCVTA operations, review soil and water testing results, review remediation and clean-up operations if necessary	Compliance with agency determined soil and groundwater quality standards	USACOE CDFG CBDC SWRCB RWQCB CPUC	Testing and (remediation if necessary) prior to construction
Underground Trimble-Montague 115 kV Alternative						
Potential for stream scour to expose the underground cable	**H-12** The applicant shall consult with representatives from the Santa Clara Valley Water District (SCVWD) who have conducted the recent flood control project on Coyote Creek and assess potential scour depth on the reach of creek where the underground crossing is planned. This information shall be used by the Applicant to determine an appropriate burial depth for the underground transmission line.	Crossing of Coyote Creek and Montague Expressway				

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