D.12 Water Resources – Contents

D.12 Water Resources

This section presents information on Water Resources conditions in Imperial and San Diego Counties and identifies potential hydrology and water quality impacts resulting from the construction and operation of the Proposed Project and alternatives. Sections D.12.1 and D.12.2 describe the existing setting as it relates to existing water resources. Section D.12.3 describes applicable regulations, plans, and standards. Section D.12.4 describes significance criteria and approach to impact assessment. Sections D.12.5 through D.12.10 describe environmental impacts and mitigation measures for the Proposed Project, Section D.12.11 addresses future transmission system expansion, and Section D.12.12 addresses connected actions and indirect effects of the Proposed Project. Sections D.12.14 through D.12.19 present impacts and mitigation measures for alternatives along the Proposed Project route. Other alternatives are evaluated in Section E.

Appendix 2 (Policy Screening Report) lists all plans and policies applicable to the Proposed Project, and presents a preliminary screening evaluation of these policies. The consistency of the Proposed Project with applicable plans and policies is addressed in Section D.16, where there is specific discussion of each item that was determined in the Appendix 2 screening process to warrant further evaluation.

D.12.1 Regional Setting and Approach to Data Collection

Approach to Data Collection

Data collection was conducted through a field trip, review of aerial photos and topographic maps, and review of documents listed in the references section of this report, including the project description, the PEA (SDG&E, 2006), and documents from the United States Geological Survey (USGS), California Department of Water Resources, and the State Water Resources Control Board. Stream crossings were identified primarily through the use of aerial photographs, supplemented by topographic maps and field site visits. Stream crossing identified include those clearly visible on aerial photographs and topographic maps. These do not necessarily include all minor channels, particularly in the desert links, where channels with multiple braids may have been considered one.

Regional Setting – Surface Water

The five links of the Proposed Project would cross regions of variable hydrologic characteristics, The Imperial Valley and Anza-Borrego Links both cross a desert region where annual rainfall is very low, vegetation sparse, and runoff very low. High runoff volumes are possible in response to high rainfall, but watercourses are mostly dry. The Central, Inland Valley, and Coastal Links are in a wetter region with higher rainfall, more abundant vegetation, and more persistent stream flows.

The Peninsular Mountain Range forms the divide between the Colorado River Basin, which drains generally east toward the Salton Sea and the Colorado River, and the South Coast Basin, which drains west toward the Pacific Ocean (SDG&E, 2006).

Based on the information provided by the California State Water Resources Control Board, the Sunrise Project crosses the South Coast and the Colorado River hydrologic regions. Each hydrologic region is subdivided into subregions and further divided into basins and sub-basins. Basins crossed by the project within the South Coast Hydrologic Region include the San Diego, San Luis Rey, San Dieguito, and Peñasquitos basins; those within the Colorado River Hydrologic Region include the Imperial and Anza-Borrego basins (SDG&E, 2006).

The project alignments are located in two primary Hydrologic Regions: the Colorado River Hydrologic Region governed by the Colorado River Regional Water Quality Control Board (Colorado RWQCB) and the San Diego Hydrologic Region governed by the San Diego Regional Water Quality Control Board (San Diego RWQCB). These regional boards are charged by the State Water Resources Control Board (SWRCB) with implementing programs that preserve and enhance water quality and protect the beneficial uses of their regional water. The project alignments would fall within planning areas governed by the two regional boards and the State board. The Imperial Valley and Anza-Borrego Links would fall within the Colorado RWQCB planning areas for the Imperial Valley and Anza-Borrego Desert State Park (CRWQCB, 2005). The Central Link would fall within both the Colorado RWQCB Anza-Borrego planning area and the San Diego RWQCB planning area. The alignments proposed for the Inland Valley and Coastal Links would fall within the San Diego RWQCB planning area (SDG&E, 2006). The SWRCB is responsible for certification and stormwater permitting, and is a responsible agency under CEQA.

The general characteristics of the two distinct regions on either side of the Peninsular Mountain Range are illustrated in photographs in Figures D.12-1 and D.12-2. Figure D.12-1 shows a view across San Felipe Creek in the vicinity of the Narrows Substation in the Anza-Borrego Link. The area is desert with a wide, sandy creek bed that is shallow and highly erodible. The surrounding hills are sparsely vegetated. Figure D.12-2 shows a view looking across the Santa Ysabel Valley near MP 108 of the Central Link. The Santa Ysabel Creek, hidden by topography, crosses from right to left between the camera location and the background hills. The river is incised and lined with oaks. The valley is grassland, and the hills are thickly vegetated with chaparral, oaks and grass. Although there is variation and some overlap, these two photographs typify the general setting, with Figure D.12-1 representing the Anza-Borrego and Imperial Valley Links, and Figure D.12-2 representing the Coastal, Inland Valley, and Central Links.

Rainfall is substantially higher for the Coastal, Inland Valley and Central Links than for the Anza-Borrego and Imperial Valley Links (see graphs in Figure D.12-3). Runoff characteristics are also different, as is illustrated by stream data from the San Felipe Creek near Julian in the Anza-Borrego Link (Figure D.12-4), and the Santa Ysabel River near Ramona, in the Inland Valley Link (Figure D.12-5).

Stream flow for the two desert links is ephemeral and activated entirely by rainfall. Watercourses are dry for most of the year, and there is little sustained flow after rainfall occurs, particularly in the summer. This is illustrated in Figure D.12-4. Summer rainfall and runoff peaks and valleys are coincident, indicating that runoff from the very sparse summer storms occurs very shortly after the occurrence of the storms.

Stream flow in the three western links is also ephemeral and activated by rainfall, but due to the wetter climate and more watershed vegetative cover there is more potential for dry-season flow. This is illustrated in Figures D.12-5 and D.12-6. Figure D.12-5 shows monthly rainfall in comparison to monthly runoff for the Santa Ysabel River near Ramona. The Santa Ysabel River exhibits a summer lag such that the low point in runoff occurs approximately 3-4 months after the low point in rainfall. The rise in runoff in the fall lags behind the rise in rainfall. Figure D.12-6 shows Santa Ysabel River summer runoff in comparison to San Felipe Creek summer runoff. Santa Ysabel River flows during this period are 2 to 30 times higher than those of San Felipe Creek.

More details on the hydrologic characteristics of the individual links are provided in the sections for each link in the text below.

Figure D.12-1. San Felipe Creek near the Narrows Substation, Anza-Borrego Link

Figure D.12-2. View Across Santa Ysabel River, Inland Valley Link

Figure D.12-3. Average Monthly Rainfall

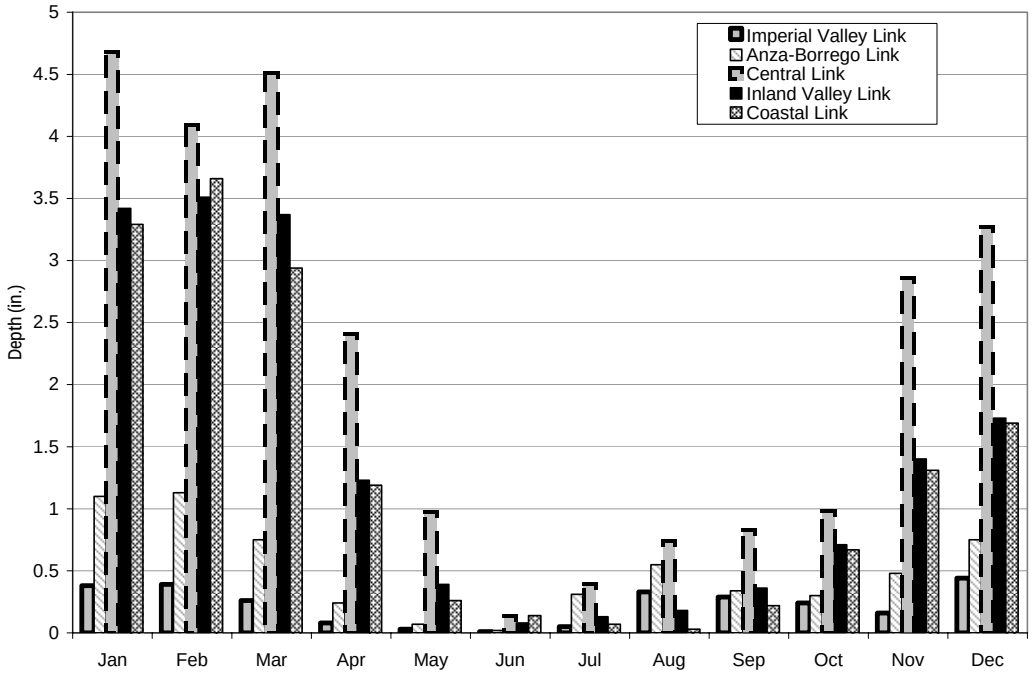


Figure D.12-4. Anza-Borrego Link Rainfall/Runoff

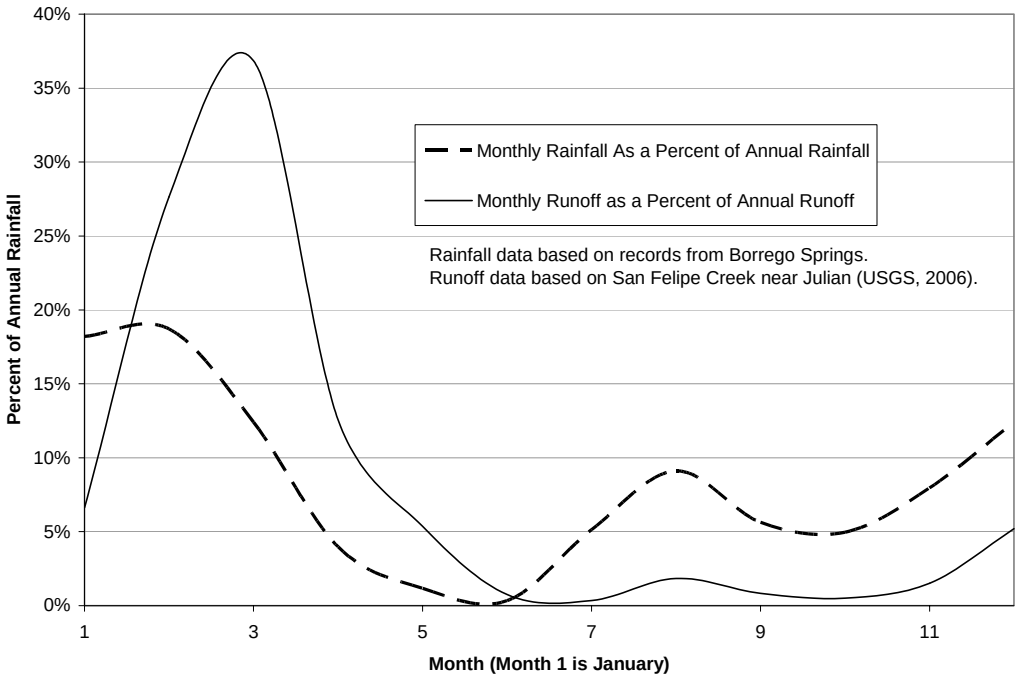


Figure D.12-5. Inland Valley Link Rainfall/Runoff

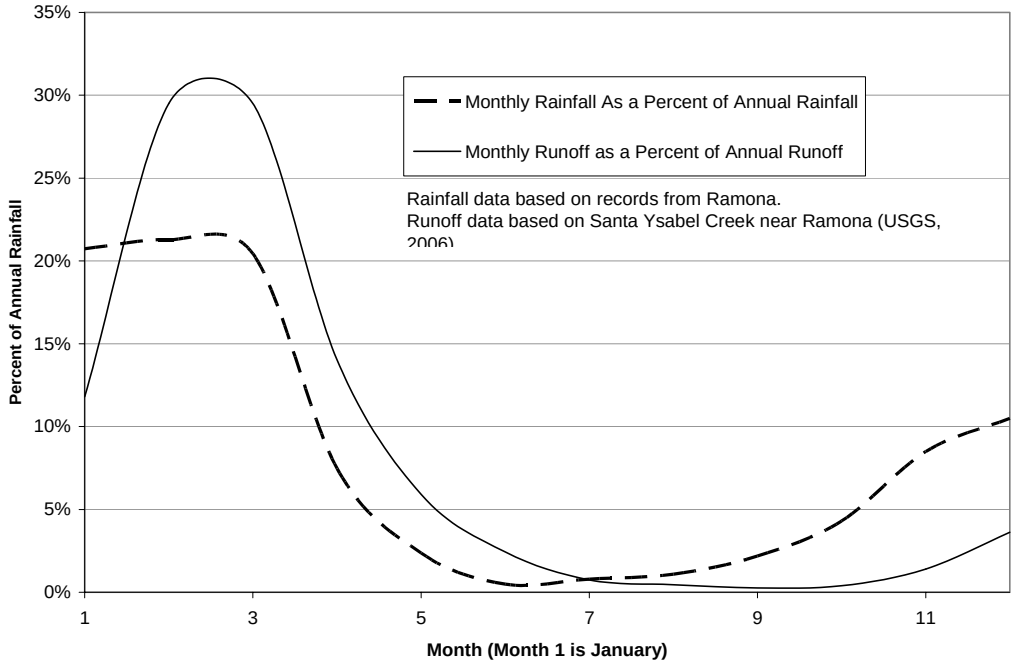
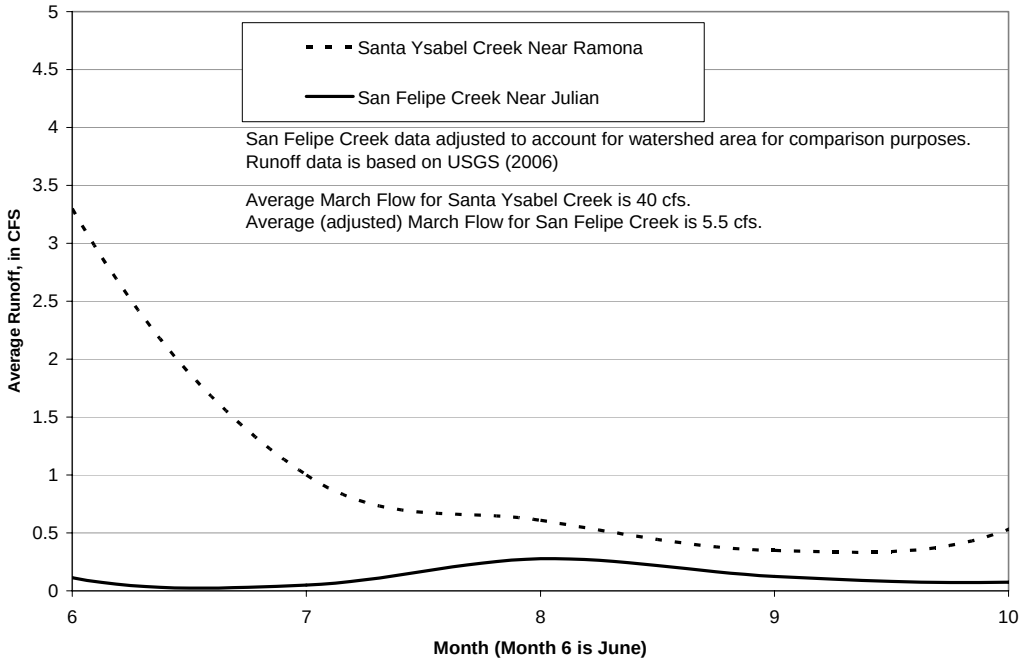


Figure D.12-6. Summer Runoff for Santa Ysabel Creek



Imperial Valley Link

The Imperial Valley Link climate is characterized by hot summers and mild winters. Based on records from nearby Brawley, December temperatures average 40 to 70 degrees Fahrenheit. July temperatures average 75 to 108 degrees. Annual precipitation at Brawley is approximately 2.7 inches per year, and Snowfall is negligible. Rainfall seasonality, as represented by Brawley, is illustrated in Figure D.12-3, which shows that 61% of the annual rainfall falls between November and March (all rainfall and weather data in this report are from Southern California Climate Summaries 2006).

Topographic elevation is low, approaching sea level, with low topographic relief. Runoff mostly occurs in direct response to rainfall. Natural streams are sandy and dry most of the year, but stream flow can be high in response to heavy rains. Streams are generally shallow with banks and beds highly subject to erosion. Many streams are braided and can have variable and unpredictable flow paths from runoff event to runoff event. Stream flow is generally eastward, ultimately reaching the Salton Sea.

Anza-Borrego Link

The Anza-Borrego Link climate is characterized by hot summers and mild winters. December temperatures at Borrego Springs average 43 to 69 degrees Fahrenheit. July temperatures average 75 to 107 degrees. Annual precipitation at Borrego Springs (Figure D.12-~~1~~3) is approximately 6 inches per year. Snowfall is about 0.2 inches per year. Rainfall seasonality is more pronounced than for the Imperial Valley Link. Figure D.12-3, shows that 70% of the annual rainfall falls between November and March, as opposed to 61% for the Imperial Valley Link. This trend of increased seasonality of precipitation becomes more pronounced for each of the successive westward links.

Topographic elevation is moderate (780 feet above sea level at Borrego Springs), but in areas there is substantial topographic relief with elevations much higher. Stream flow is toward the Salton Sea to the east. In areas not confined by hillsides, the stream banks and beds can be highly subject to erosion. Many streams are braided and can have variable and unpredictable flow paths from runoff event to runoff event.

Central Link

The Central Link climate is characterized by mild, dry summers and mild, wet winters. Based on records from Julian, December temperatures average 36 to 57 degrees. July temperatures average 53 to 90 degrees. Precipitation is relatively high for Southern California, averaging 26 inches per year (based on records from Julian). Precipitation (Figure D.12-3) is seasonal, with approximately 75% falling between November and March. Snowfall averages 8.2 inches per year.

The topography is hilly. The peak elevation in the Central Link can exceed 4,000 feet. Some streams drain to the Salton Sea, and others drain to the Pacific Ocean. Streams are generally confined between hillsides or incised on relatively narrow floodplain areas. Although there is potential for stream bank erosion, there is less potential for widespread channel changes than could occur in the lower reaches of the desert links.

Stream flow is seasonal and dominated by the winter months, but because of the higher precipitation and greater vegetative cover, streams in the central link are more likely to sustain summer runoff than those of the Imperial Valley and Anza-Borrego Links.

Inland Valley Link

The Inland Valley Link Climate is characterized by mild, dry summers and mild, moderately wet winters. December temperatures at Ramona average 37 to 67 degrees. July temperatures average 56 to 90 degrees. Precipitation averages approximately 16 inches per year. Approximately 81% of annual precipitation falls between November and March. Based on records from Ramona, average annual snowfall is zero.

Topography is variable, and characterized by hills bisected by streams in canyons with steep side slopes. Drainage is to the Pacific Ocean. Ground elevations trend lower than in the central link. The town of Ramona, which is crossed by the Inland Valley Link, is at 1,390 feet above sea level. Streams are generally incised and contained by valleys, but there is potential for local stream bank erosion similar to the Central Link.

Coastal Link

The Coastal Link is similar to the Inland Valley Link in climate and topography. Ground elevations approach sea level toward the west. Precipitation, based on records from Escondido, is approximately the same as for the Inland Valley Link, with a slightly more pronounced concentration of rainfall in the winter months. Approximately 83% of annual precipitation falls between November and March. Topography and stream flow characteristics are similar to the Inland Valley Link, with ground elevations approaching sea level toward the west. Drainage is to the Pacific Ocean.

Flood and Erosion Hazards

Many of the streams to be crossed by the project have delineated 100-year floodplains or flood hazard areas designated by the Federal Emergency Management Agency (FEMA). Those identified in the PEA (SDG&E, 2006) include Yuha Wash, Palm Canyon, Carrizo Wash, San Felipe Creek, Fish Creek Wash, Coyote Creek, Matagual Creek, Carrista Creek, Santa Ysabel Creek, Beeler Canyon, and Los Peñasquitos Canyon.

The 100-year floodplain is the area that would be inundated by a flood with a recurrence interval of once in 100 years, on average. The purpose of the floodplain delineations is to identify flood hazard areas for flood insurance purposes and to inform the public and local permitting agencies about flood hazards so that construction and other activities in flood prone areas can be managed in a manner that will reduce or mitigate future flood damage. Building is permitted in flood prone areas with certain restrictions. For instance, buildings are to be elevated such that the lowest floor is above the 100-year flood level, and an area of the watercourse is typically set aside for flow conveyance (the floodway).

Since floodplain mapping is usually done as an aid to local governments in urban areas or areas that are expected to be prone to urbanization, most watercourses in outlying areas are not mapped even though they may be subject to substantial flood hazards. It is reasonable to assume that all watercourses which convey natural flows, whether mapped as floodplains or flood hazard areas or not, present some level of flood hazard.

The flood hazard is not limited to inundation. Bank erosion and bed scour (a lowering or destabilization of the channel bed during a flow event) are also hazards that should be taken into consideration in designing infrastructure in or near a natural watercourse. Most natural washes are subject to bank erosion and bed scour at some level. In the project area, erosion and scour are more likely to be a concern in the desert areas (Imperial Valley and Anza-Borrego Links), but could occur anywhere along the route.

Regional Setting – Groundwater

The project crosses through the Colorado River Hydrologic Region and the San Diego Hydrologic Subregion of the South Coast Hydrologic Region as designated by the California Department of Water Resources. The Imperial Valley and Anza-Borrego Links and about half of the Central Link are in the Colorado River Hydrologic Region. The Coastal and Inland Valley Links, and the other half of the Central Link, are in the San Diego Hydrologic Subregion. Each of these regions is divided into groundwater basins, which are described further in Section D.12.2 of this report. By comparison, the basins of the Colorado River Hydrologic Region are much larger than those of the San Diego Hydrologic Subregion. Except as otherwise cited, all groundwater information provided in this report, including groundwater quality information, is from California's Groundwater – Bulletin 118 (California Department of Water Resources, 2003).

Colorado River Hydrologic Region

The Colorado River Hydrologic Region covers 13 million acres of southeastern California and is bounded by the states of Nevada and Arizona to the east; the Republic of Mexico to the south; the Laguna, San Jacinto, and San Bernardino mountains to the west; and the New York, Providence, Granite, Old Dad, Bristol, Rodman, and Ord mountain ranges to the north (California Department of Water Resources, 2003). There are 64 sub-basins in the hydrologic region. The unconfined to confined aquifers are composed of unconsolidated alluvium varying from tens to thousands of feet in thickness depending on the size of the sub-basins. The average depths to groundwater range from about 3 feet below ground surface (bgs) in the alluvial drainages near the Salton Sea to more than 400 feet in the mountainous areas in the Peninsular range. Groundwater in the Colorado River Hydrologic Region is characterized by sodium, calcium, and, to a lesser extent, magnesium cation concentrations. The main water quality concerns include high total dissolved solids (TDS). Concentrations of fluoride, sulfate, and nitrate have exceeded the drinking water standards in agricultural areas (SDG&E, 2006).

The groundwater resources in the Imperial Valley and Anza-Borrego Links are predominantly located in the Colorado River Hydrologic Region, with an overlap into the San Diego Hydrologic Subregion in the western portion of the Anza-Borrego Link (SDG&E, 2006).

San Diego Hydrologic Subregion

The San Diego Hydrologic Subregion is located in the South Coast Hydrologic Region, which covers 6.70 million acres of Southern California and is bounded by the Pacific Ocean to the west, the Transverse Ranges to the north, and the San Jacinto Mountains and the Peninsular Range low-lying hills to the east (State of California, 2003). The groundwater resources associated with the project are located in the San Diego Subregion 9, which contains 27 groundwater basins. Groundwater is produced from the unconsolidated alluvial aquifer units (SDG&E, 2006).

Groundwater is mainly composed of calcium and sodium ions and bicarbonate and sulfate anions. There are reportedly local impairments by nitrate, sulfate, and TDS contamination (California Department of Water Resources, 2003). Impairment to groundwater is an emerging problem. Wells located throughout the South Coast Aquifer yield between 20 and several thousand gpm of water. Twenty-three percent (1,177 total acre-foot) of the region's water demand is met by groundwater resources (SDG&E, 2006).

Regional Setting – Water Quality

With the exception of Los Peñasquitos Canyon (Los Peñasquitos Creek), none of the streams crossed by the project are listed as water quality limited under Section 303(d) of the 1972 Clean Water Act. Los Peñasquitos Canyon is listed for phosphate and dissolved solids of unknown source. Los Peñasquitos Canyon drains into Los Peñasquitos Lagoon, which is listed as water quality limited for sedimentation and siltation. Los Peñasquitos Canyon is of particular importance because it is a natural area that has been set aside by the City and County of San Diego for open space and habitat preservation as part of the Los Peñasquitos Canyon Preserve.

Water quality of some receiving waters, however, is an issue of concern for streams along the Imperial Valley, Anza-Borrego and part of the Central Links. The Salton Sea is a high-priority limited water-body threatened by nutrients, salinity and other pollutants originating from industrial point sources, agricultural return flow and out-of-state sources. The New River, by which much of the flow across the Imperial Valley Link is conveyed to the Alamo River and then to the Salton Sea, is polluted by pathogens, silt, pesticides, dissolved organic matter/dissolved oxygen, trash, chloroform, toluene, p-cymene, 1,2,4-trimethylbenzene, m,p,-xylene, o-xylenes, and nutrients, mostly from Mexico and the local agricultural uses. The Alamo River is listed for silt, pesticides and selenium. Except as otherwise cited, all surface water quality information in this report is from the State Water Resources Control Board (SWRCB, 2007).

Section 303(d) of the SWRCB has defined total maximum daily loads, or TMDLs, for the New River and the Salton Sea. TMDLs must account for all sources of the pollutants that caused the water to be listed under section 303(d), and are used as a standard for water quality implementation procedures in the regional water quality control plans (see Section D.12.3). TMDLs are established at the level necessary to implement the applicable water quality standards.

New River TMDLs have been established for pathogens, dissolved oxygen, trash, and sedimentation/siltation. The major New River sediment sources are Imperial Valley agricultural return flows. Minor sediment sources include in-stream erosion, point source facilities, Mexico wastewater, and dredging. Relatively insignificant sources are stormwater runoff, and urban runoff and wind deposition. The Salton Sea TMDL was established for nutrients.

D.12.2 Environmental Setting for the Proposed Project

This section describes specific water resources, in terms of stream crossings and groundwater basins, crossed by the Proposed Project. The consistency of the Proposed Project with applicable plans and policies is addressed in Section D.16, where there is specific discussion of each item that was determined in the Appendix 2 screening process to warrant further evaluation. Appendix 2 (Policy Screening Report) lists all plans and policies applicable to the Proposed Project, and presents a preliminary screening evaluation of these policies.

D.12.2.1 Imperial Valley Link

Surface Water

Surface water resources along this link are listed in Table D.12-1 and are typical desert washes. There are at least ~~49~~ 41 identified watercourse crossings. Other minor watercourse crossings may be found along the route. All of the natural watercourses are dry for a majority of the year. Table D.12-1 (as well as subsequent similar tables for other project links) includes a column for the groundwater basin below the

indicated stream crossing, as well as a column for FEMA floodplain mapping. The FEMA column indicates whether the 100-year floodplain at the crossing has been mapped by FEMA as a flood hazard area. Although mapping is an indicator of designated flood hazard, a flood hazard is still possible on streams not mapped by FEMA.

As described in Section D.12.3, the California Regional Water Quality Control Boards designate beneficial uses for surface and groundwaters. Beneficial use designations include: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Groundwater Recharge (GWR), Freshwater Replenishment (FRSH), Navigation (NAV), Hydropower Generation (POW), Contact Water Recreation (REC-1), Non-contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Aquaculture (AQUA), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Inland Saline Water Habitat (SAL), Estuarine Habitat (EST), Marine Habitat (MAR), Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early, Development (SPWN), and Shellfish Harvesting (SHELL).

Beneficial uses as designated by the Regional Water Quality Control Board are listed in Table D.12-1 for streams crossed by the Imperial Valley Link. For this table and all subsequent such tables in this report, streams for which no beneficial use has been defined by the RWQCB are considered to have the same beneficial uses as the nearest downstream watercourse for which beneficial uses are designated.

~~Table D.12-1. Surface Water Resources – Imperial Valley Link~~

~~Watercourse~~	~~Associated Groundwater Basin~~	~~FEMA Flood Hazard Area~~
	~~Project MP 0 to 4~~	
~~No Name~~	~~Imperial Valley~~	~~Not Mapped~~
	~~Project MP 4 to 20~~	
~~Yuha Wash~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~Coyote Wash~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
	~~Project MP 20 to 38~~	
~~No Name~~	~~Imperial Valley~~	~~Not Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Not Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Not Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Not Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Not Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Not Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Mapped~~
~~No Name~~	~~Imperial Valley~~	~~Not Mapped~~
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
	~~Project MP 38 to 40~~	
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Not Mapped~~
~~San Felipe Creek~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
	~~Project MP 40 to 47~~	
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~No Name~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
	~~Project MP 47 to 50~~	
~~Tarantula Wash~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~San Felipe Creek~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~Fish Creek Wash~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
	~~Project MP 50 to 54~~	
~~Tributary Fish Creek Wash~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~Tributary Fish Creek Wash~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
~~Fish Creek Wash~~	~~Ocotillo-Clark Valley~~	~~Mapped~~
	~~Project MP 54 to 61~~	
~~Tributary to Fish Creek Wash~~	~~Borrego Valley~~	~~Mapped~~
~~Tributary to Fish Creek Wash~~	~~Borrego Valley~~	~~Mapped~~
~~Tributary to Fish Creek Wash~~	~~Borrego Valley~~	~~Not Mapped~~
~~No Name~~	~~Borrego Valley~~	~~Not Mapped~~

Table D.12-1. Surface Water Resources – Imperial Valley Link

Watercourse	Beneficial Uses	Associated Groundwater Basin	FEMA Flood Hazard Area
Project MP 0 to 4			
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Not Mapped
Project MP 4 to 20			
Yuha Wash	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Coyote Wash	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Project MP 20 to 38			
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Not Mapped
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Not Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Not Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Not Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Not Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Not Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Imperial Valley	Not Mapped
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Project MP 38 to 40			
Unnamed	Trib. to Salton Sea; AQUA, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Not Mapped
San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Project MP 40 to 47			
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Project MP 47 to 50			
Tarantula Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped

Table D.12-1. Surface Water Resources – Imperial Valley Link

Watercourse	Beneficial Uses	Associated Groundwater Basin	FEMA Flood Hazard Area
Fish Creek Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Project MP 50 to 54			
Tributary Fish Creek Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Tributary Fish Creek Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Fish Creek Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Ocotillo–Clark Valley	Mapped
Project MP 54 to 61			
Trib. to Fish Creek Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Mapped
Trib. to Fish Creek Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Mapped
Trib. to Fish Creek Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped

Groundwater

All of the Imperial Valley Link is situated above a designated groundwater basin of the Colorado River Region. Specifically, this link crosses the Imperial Valley (MP 0 to 32), Ocotillo-Clark Valley (MP 32 to 53) and Borrego Valley (MP 53 to 61) groundwater basins. The Imperial Valley Basin has two major aquifers separated vertically and averaging 200 feet and 380 feet in thickness (California Department of Water Resources, 2003). Recharge is primarily from irrigation return, but percolation of rainfall from the area crossed by the project is also a recharge source. Groundwater quality is variable. TDS content ranges from 498 to 7,280 mg/L. Groundwater in some areas of the basin has higher than recommended levels of fluoride and boron. Depth to groundwater in the vicinity of the project is generally greater than 40 feet (California Department of Water Resources, 2007).

The Ocotillo-Clark and Borrego Valley basins are alluvial basins underlain by non-water bearing crystalline bedrock. Depth to groundwater is approximately 240 feet in the Ocotillo-Clark Basin. Groundwater in the Borrego Valley Basin is at least 110 feet (California Department of Water Resources, 2007). Recharge is by percolation of runoff. High TDS, sulfate, chloride, and fluoride concentrations locally impair groundwater for domestic and irrigation use in the Ocotillo-Clark Basin. High TDS content, as well as nitrates sodium, sulfate, chloride, iron, and boron are of concern in the Borrego Valley Basin.

The Borrego Valley Groundwater Basin is the primary source of water for the Borrego Springs area. Water in this basin is declining, particularly as a result of agricultural activities. The annual drop in water level is approximately two feet. At this rate, usable groundwater in the basin could be depleted in 100 years (Borrego Water District, 2007). Designated beneficial uses for groundwater include MUN and IND for the Imperial Valley Groundwater Basin, MUN, IND, and AGR for the Borrego Valley Groundwater Basin, and MUN for the Ocotillo-Clark Valley Groundwater Basin.

D.12.2.2 Anza-Borrego Link

Surface Water

Surface water resources (Table D.12-2) along this link are also desert washes although the terrain is more mountainous than the Imperial Valley Link. There are at least ~~33~~ 26 identified watercourse crossings. Other minor watercourse crossings may be found along the route. All of the natural watercourses are dry at most times. The proposed ROW in this link is parallel to San Felipe Creek and Grapevine Canyon for approximately two-thirds of its length. Beneficial uses as designated by the Regional Water Quality Control Board are listed in Table D.12-2.

Groundwater

The easternmost 9 miles of the Anza-Borrego Link are above the Borrego Valley Groundwater Basin of the Colorado River Region (MP 61 to 70). The Borrego Valley Basin is described in Section D.12.2.1.

Approximately 10 miles (MP 71 to MP 81) of the Anza-Borrego Link are above the Yaqui Well Area Groundwater Basin. Data on depth of groundwater in this basin is not available (California Department of Water Resources, 2003). This is an alluvial basin supplied by infiltration of runoff, partially from San Felipe Creek by way of Sentenac Canyon. The groundwater is high in sodium-calcium sulfate and calcium-sodium sulfate character. Total dissolved solids (TDS) concentrations range from about 1,060 to 3,750 mg/L and average about 2,400 mg/L and impair the water for domestic use. Designated beneficial uses or groundwater include MUN, IND, and AGR.

~~Table D.12-2. Surface Water Resources – Anza-Borrego Link~~

~~Watercourse~~	~~Associated Groundwater Basin~~	~~FEMA Flood Hazard Area~~
~~Project MP 61 to 70~~		
~~No Name~~	~~Borrego Valley~~	~~Not Mapped~~
~~No Name~~		
~~No Name~~		
~~No Name~~		
~~Tributary San Felipe Creek~~		
~~Sunset Wash~~		
~~Nude Wash~~		
~~Project MP 70 to 75~~		
~~Quartz Vein Wash~~	~~Yaqui Well Area~~	~~Not Mapped~~
~~Pinyon Wash~~		
~~Tributary San Felipe Creek~~		
~~Tributary San Felipe Creek~~		
~~Mine Wash~~		
~~Chuckwalla Wash~~		
~~San Felipe Creek~~		
~~Project MP 75 to 78~~		
~~Tributary San Felipe Creek~~	~~Yaqui Well Area~~	~~Not Mapped~~
~~Tributary to San Felipe Creek~~		
~~Tributary San Felipe Creek~~		
~~San Felipe Creek~~		
~~San Felipe Creek~~		
~~Project MP 78 to 83.5~~		
~~Tributary Grapevine Canyon~~	~~Yaqui Well Area~~	~~Not Mapped~~
~~Tributary Grapevine Canyon~~		
~~Tributary Grapevine Canyon~~		
~~Grapevine Canyon~~		
~~Tributary Grapevine Canyon~~		
~~Tributary Grapevine Canyon~~	~~Yaqui Well Area[1]~~	
~~Tributary Grapevine Canyon~~		

Table D.12-2. Surface Water Resources – Anza-Borrego Link

Watercourse	Beneficial Uses	Associated Groundwater Basin	FEMA Flood Hazard Area
Project MP 61 to 70			
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped

Table D.12-2. Surface Water Resources – Anza-Borrego Link

Watercourse	Beneficial Uses	Associated Groundwater Basin	FEMA Flood Hazard Area
Unnamed	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped
Tributary San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped
Sunset Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped
Nude Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Borrego Valley	Not Mapped
Project MP 70 to 75			
Quartz Vein Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Pinyon Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Tributary San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Tributary San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Mine Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Chuckwalla Wash	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Project MP 75 to 78			
Tributary San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Tributary San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Tributary San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
San Felipe Creek	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Yaqui Well Area	Not Mapped
Project MP 78 to 83.5			
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area	Not Mapped
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area	Not Mapped
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area	Not Mapped
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area	Not Mapped
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area	Not Mapped
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area	Not Mapped
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area	Not Mapped

D.12.2.3 Central Link

Surface Water

Surface water resources along this link (Table D.12-3) are dry most of the year even though the terrain is more mountainous and more vegetated than the desert links. There are at least ~~36~~ 28 identified watercourse crossings associated with the Proposed Project along this link. Several of the crossings, as described in Table D.12-3, drain to Lake Henshaw, a water supply reservoir. Beneficial uses as designated by the Regional Water Quality Control Board are listed in Table D.12-3.

Groundwater

Approximately 3 miles of the Central Link (MP 97 to 100) crosses the edge of the Warner Valley Groundwater Basin of the San Diego Hydrologic Subregion. The project crosses streams that drain to the Yaqui Well Area and Santa Maria Valley groundwater basins as indicated in Table D.12-3. The Warner Valley Basin is in alluvium approximately 900 feet thick in the vicinity of Lake Henshaw. Depth to groundwater is generally greater than 15 feet (California Department of Water Resources, 2007). Groundwater in this basin is generally suitable for irrigation and domestic uses except near Warner Hot Springs, where it is rated inferior for irrigation use because of sodium content and for domestic use because of high fluoride concentrations. TDS content averages about 304 mg/L. Designated beneficial uses for groundwater basins include MUN, AGR, FRSH, and IND.

~~Table D.12-3. Surface Water Resources – Central Link~~

~~Watercourse~~	~~Associated Groundwater Basin~~	~~FEMA Flood Hazard Area~~
~~Project MP 83.5 to 86~~		
~~Tributary Grapevine Canyon~~	~~Yaqui Well Area[1]~~	~~Not Mapped~~
~~Grapevine Canyon~~		
~~Tributary Grapevine Canyon~~		
~~Tributary Grapevine Canyon~~		
~~Project MP 86 to 89~~		
~~Hoover Canyon~~	~~Warner Valley[1]~~	~~Not Mapped~~
~~Tributary Hoover Canyon~~		
~~Hoover Canyon~~		
~~Tributary Buena Vista Creek~~		
~~No Name~~		
~~Project MP 89 to 98~~		
~~No Name~~	~~Warner Valley[1]~~	~~Not Mapped~~
~~Tributary to Buena Vista Creek~~		
~~Tributary to Buena Vista Creek~~		
~~Project MP 98 to 100~~		
~~Matagual Creek~~	~~Warner Valley~~	~~Not Mapped~~
~~Tributary to Lake Henshaw~~		
~~Tributary to Lake Henshaw~~		
~~Carrizo Creek~~		~~Mapped~~
~~Carrista Creek~~		
~~Project MP 100 to 104~~		
~~Tributary to Carrista Creek~~	~~Warner Valley[1]~~	~~Not Mapped~~
~~Project MP 104 to 106~~		
~~Tributary to Santa Ysabel Creek~~	~~Santa Maria Valley[1]~~	~~Not Mapped~~
~~Tributary to Santa Ysabel Creek~~		
~~Tributary to Santa Ysabel Creek~~		
~~Tributary to Santa Ysabel Creek~~		
~~Project MP 106 to 111~~		
~~Tributary to Santa Ysabel Creek~~	~~Santa Maria Valley[1]~~	~~Not Mapped~~
~~Tributary to Santa Ysabel Creek~~		
~~Tributary to Santa Ysabel Creek~~		
~~Santa Ysabel Creek and confluence with Tributaries~~		~~Mapped~~
~~Tributary to Santa Ysabel Creek~~		~~Not Mapped~~
~~Witch Creek~~		

~~1 Watercourse drains to this groundwater basin. Crossing is outside the basin.~~

~~1 Watercourse drains to this groundwater basin. Crossing is outside the basin.~~

Table D.12-3. Surface Water Resources – Central Link

Watercourse	Beneficial Uses	Associated Groundwater Basin	FEMA Flood Hazard Area
Project MP 83.5 to 86			
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area*	Not Mapped
Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area*	Not Mapped
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area*	Not Mapped
Tributary Grapevine Canyon	GWR, REC1, REC2, WARM, WILD	Yaqui Well Area*	Not Mapped
Project MP 86 to 89			
Hoover Canyon	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley*	Not Mapped
Tributary Hoover Canyon	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley*	Not Mapped
Hoover Canyon	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley*	Not Mapped
Tributary Buena Vista Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Warner Valley*	Not Mapped
Unnamed	Trib. to Buena Vista Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Warner Valley*	Not Mapped
Project MP 89 to 98			
Unnamed	Trib. to Buena Vista Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Warner Valley*	Not Mapped
Trib. to Buena Vista Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Warner Valley*	Not Mapped
Trib. to Buena Vista Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Warner Valley*	Not Mapped
Project MP 98 to 100			
Matagual Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Warner Valley	Not Mapped
Trib. to Lake Henshaw	MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Warner Valley	Not Mapped
Trib. to Lake Henshaw	MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Warner Valley	Not Mapped
Carrizo Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Warner Valley	Mapped
Carrista Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley	Mapped
Project MP 100 to 104			
Trib. to Carrista Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley*	Not Mapped
Project MP 104 to 106			
Trib. to Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Not Mapped
Trib. to Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Not Mapped
Trib. to Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Not Mapped
Trib. to Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Not Mapped
Project MP 106 to 111			
Trib. to Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Not Mapped
Trib. to Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Not Mapped
Trib. to Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Not Mapped
Santa Ysabel Creek and confluence with Tributaries	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Mapped
Trib. to Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*	Not Mapped
Witch Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Maria Valley*	Not Mapped

*Watercourse drains to this groundwater basin. Crossing is outside the basin

D.12.2.4 Inland Valley Link

Surface Water

Surface water resources along the Inland Valley Link are listed in Table D.12-4. There are at least ~~29~~ 24 identified watercourses that would be crossed by the Proposed Project in the Inland Valley Link. Beneficial uses as designated by the Regional Water Quality Control Board are listed in Table D.12-4.

Groundwater

The Inland Valley Link crosses no designated groundwater basin. All of the stream crossings in this link (Table D.12-4) drain to the area of the San Diego River Valley groundwater basin. Designated beneficial uses for San Diego River Valley Groundwater include MUN, AGR, IND, and PROC.

~~Table D.12-4. Surface Water Resources – Inland Valley Link~~

~~Watercourse~~	~~Associated Groundwater Basin~~	~~FEMA Flood Hazard Area~~
~~Project MP 111 to 117.5~~		
~~Dye Canyon~~	~~San Diego River Valley[1]~~	~~Not Mapped~~
~~San Vicente~~		
~~Swartz Canyon~~		
~~Swartz Canyon~~		
~~Project MP 117.5 to 122~~		
~~Tributary San Vicente Creek~~	~~San Diego River Valley[1]~~	~~Not Mapped~~
~~Tributary San Vicente Creek~~		
~~Tributary San Vicente Creek~~		
~~Tributary San Vicente Creek~~		
~~Tributary San Vicente Creek~~		
~~Tributary San Vicente Creek~~		
~~Tributary San Vicente Creek~~		
~~Project MP 122 to 123.5~~		
~~Tributary San Vicente Creek~~	~~San Diego River Valley[1]~~	~~Not Mapped~~
~~Tributary San Vicente Creek~~		
~~Project MP 123.5 to 137~~		
~~Daney Canyon~~	~~San Diego River Valley[1]~~	~~Not Mapped~~
~~Tributary to Daney Canyon~~		
~~West Branch San Vicente Creek~~		
~~Tributary West Branch San Vicente Creek~~		
~~Foster Canyon~~		
~~Tributary San Vicente Creek~~		
~~Tributary San Vicente Creek~~		
~~Sycamore Canyon~~		
~~SDCWA[2] Second Aqueduct~~		
~~Tributary Sycamore Canyon~~		
~~West Sycamore Canyon~~		

~~1 Watercourse drains to this groundwater basin. Crossing is outside the basin.~~

Table D.12-4. Surface Water Resources – Inland Valley Link

Watercourse	Beneficial Uses	Associated Groundwater Basin	FEMA Flood Hazard Area
Project MP 111 to 117.5			
Dye Canyon	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	San Diego River Valley*	Not Mapped
San Vicente	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Swartz Canyon	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Swartz Canyon	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Project MP 117.5 to 122			
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Project MP 122 to 123.5			
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Project MP 123.5 to 137			
Daney Canyon	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Trib. to Daney Canyon	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
West Branch San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary West Branch San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Foster Canyon	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	San Diego River Valley*	Not Mapped
Tributary San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	San Diego River Valley*	Not Mapped
Sycamore Canyon	AGR, IND, REC1, REC2, WARM, WILD, RARE	San Diego River Valley*	Not Mapped
SDCWA Second Aqueduct	Trib. to San Vicente Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	San Diego River Valley*	Not Mapped
Tributary Sycamore Canyon	AGR, IND, REC1, REC2, WARM, WILD, RARE	San Diego River Valley*	Not Mapped
West Sycamore Canyon	AGR, IND, REC1, REC2, WARM, WILD	San Diego River Valley*	Not Mapped

*Watercourse drains to this groundwater basin. Crossing is outside the basin.

D.12.2.5 Coastal Link

Surface Water

Surface water resources along this link are listed in Table D.12-5. There are at least 25 identified watercourses that would need to be crossed under the Proposed Project. Beneficial uses as designated by the Regional Water Quality Control Board are listed in Table D.12-5.

Groundwater

The Coastal Link crosses no designated groundwater basins. Six of the streams crossed in this link drain into the Poway Valley groundwater basin. Designated beneficial uses for Poway Valley Groundwater include MUN, AGR, and IND.

Table D.12-5. Surface Water Resources – Coastal Link

Watercourse	Associated Groundwater Basin	FEMA Flood Hazard Area
Project MP 137 to 142		
Tributary Beeler Canyon	Poway Valley[1]	Not Mapped
Tributary Beeler Canyon		
Tributary Beeler Canyon		
Tributary Beeler Canyon		
Tributary Beeler Canyon		
Tributary Beeler Canyon		
Tributary Los Peñasquitos Canyon	None	Not Mapped
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		
Los Peñasquitos Canyon		Mapped
Project MP 142 to 147		
Tributary Los Peñasquitos Canyon	None	Mapped
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		Not Mapped
Tributary Los Peñasquitos Canyon		Mapped
Tributary Los Peñasquitos Canyon		Not Mapped
Tributary Los Peñasquitos Canyon		
Project MP 147 to 150		
Tributary Los Peñasquitos Canyon (small dam)	None	Not Mapped
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		
Tributary Los Peñasquitos Canyon		

1 Watercourse drains to this groundwater basin. Crossing is outside the basin.

Table D.12-5. Surface Water Resources – Coastal Link

Watercourse	Beneficial Uses	Associated Groundwater Basin	FEMA Flood Hazard Area
Project MP 137 to 142			
Tributary Beeler Canyon	AGR, REC1, REC2, WARM, WILD	Poway Valley*	Not Mapped
Tributary Beeler Canyon	AGR, REC1, REC2, WARM, WILD	Poway Valley*	Not Mapped
Tributary Beeler Canyon	AGR, REC1, REC2, WARM, WILD	Poway Valley*	Not Mapped
Tributary Beeler Canyon	AGR, REC1, REC2, WARM, WILD	Poway Valley*	Not Mapped
Tributary Beeler Canyon	AGR, REC1, REC2, WARM, WILD	Poway Valley*	Not Mapped
Tributary Beeler Canyon	AGR, REC1, REC2, WARM, WILD	Poway Valley*	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Mapped
Project MP 142 to 147			
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Project MP 147 to 150			
Tributary Los Peñasquitos Canyon (small dam)	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped
Tributary Los Peñasquitos Canyon	AGR, IND, REC2, BIOL, WARM, WILD	None	Not Mapped

*Watercourse drains to this groundwater basin. Crossing is outside the basin

D.12.3 Applicable Regulations, Plans, and Standards

Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq., formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). NPDES permitting authority is delegated to, and administered by, California's nine ~~Regional Water Quality Control Boards (~~RWQCBs~~)~~. In

addition, the SWRCB regulates the NPDES stormwater program. The Proposed Project is under the jurisdiction of the San Diego Regional Water Quality Control Board, ~~and~~ the Colorado River Basin Regional Water Quality Control Board, and the SWRCB.

Projects that disturb one or more acres are required to obtain NPDES coverage under the California General Permit for Discharges of Storm Water Associated with Construction Activity. The Construction General Permits require the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP describes Best Management Practices (BMPs) the discharger will use to protect stormwater runoff. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment.

Section 401 of the CWA requires that any activity, including river or stream crossings during road, pipeline, or transmission line construction, which may result in a discharge into a State waterbody must be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards.

Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (ACOE) to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. The ACOE issues individual site-specific or general (Nationwide) permits for such discharges.

Section 303(d) of the Clean Water Act requires states to establish Total Maximum Daily Load (TMDL) programs for streams, lakes and coastal waters that do not meet certain water quality standards. This program is described further under State below.

Forest System Lands

The SWRCB designated the Forest Service as the Water Quality Management Agency for Forest System lands in California in 1981. The Forest Service meets its obligations for compliance with water quality standards by implementing state-certified and EPA-approved BMPs. Practice 7-5 requires that Special Use Permits include measures to protect water quality, including conformance with other water quality agency permit requirements.

State

California Streambed Alteration Agreement

Section 1601 of the California Fish and Game Code requires an agreement between the Department of Fish and Game and a public agency proposing to substantially divert or obstruct the natural flow or effect changes to the bed, channel, or bank of any river, stream, or lake. The agreement, describes best management practices which may include avoidance and restoration procedures, and is designed to protect the fish and wildlife values of a river, lake, or stream.

Prior to the commencement of any activity that would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) or a river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, the project Applicant is required to submit a complete Lake or Streambed Alteration Program notification package and fee to the California Department of Fish and Game.

California Porter Cologne Water Quality Control Act

The Porter Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the ~~State Water Resources Control Board (~~SWRCB~~)~~ and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for the project area are contained in the Water Quality Control Plan for the San Diego Basin (CRWQCB, 1994) and the Water Quality Control Plan Colorado River Basin - Region 7 (CRWQCB, 2005). Applicable constraints in the water quality control plans relate primarily to the avoidance of altering the sediment discharge rate of surface waters, and the avoidance of introducing toxic pollutants to the water resource. A primary focus of water quality control plans is to protect designated beneficial uses of waters, which range from drinking water quality to recreation and wildlife habitat.

In addition, anyone proposing to discharge waste that could affect the quality of the waters of the state must make a report of the waste discharge to the Regional Water Board or State Water Board as appropriate, in compliance with Porter-Cologne.

State Water Resources Control Board

The Proposed Project is within the San Diego and Colorado River Regional Boards of the California State Water Resources Control Board. Each Regional Board adopts a Basin Plan intended to designate beneficial uses for surface and groundwaters, and sets narrative and numerical objectives for protection of the beneficial uses. Beneficial use designations include: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Groundwater Recharge (GWR), Freshwater Replenishment (FRSH), Navigation (NAV), Hydropower Generation (POW), Contact Water Recreation (REC-1), Non-contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Aquaculture (AQUA), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Inland Saline Water Habitat (SAL), Estuarine Habitat (EST), Marine Habitat (MAR), Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early, Development (SPWN), and Shellfish Harvesting (SHELL) (CRWQCB, 1994 and 2005).

In addition to a general antidegradation water quality objective which basically states that water quality that is better than stated objectives shall be maintained, the San Diego Regional Board has specific inland water quality objectives for water temperature, agricultural supply beneficial use, ammonia, bacteria, biostimulatory substances (e.g. nitrogen and phosphorus), boron, chlorides, color, dissolved oxygen, floating material, fluoride, pH, inorganic chemicals, iron, manganese, methylene blue, nitrate, oil and grease, organic chemicals, sodium, pesticides, phenolic compounds, radioactivity, drinking water, sediment, suspended solids, sulfate, taste and odor, total dissolved solids, toxicity, toxic pollutants, trihalomethanes, and turbidity (CRWQCB, 1994). There are also specific groundwater objectives listed by groundwater basin.

The Colorado River Regional Board also has a general antidegradation policy, as well as general objectives for aesthetic qualities, tainting substances, toxicity, temperature, pH, dissolved oxygen, suspended and settleable solids, total dissolved solids, bacteria, biostimulatory substances, sediment, turbidity, radioactivity, chemical constituents, and pesticide wastes. There are also specific objectives for the Colorado River, the New River, Irrigation Supply Canals, and the Salton Sea. Groundwater objectives include taste and odor, bacteria, chemical and physical quality, brines, radioactivity, and overdraft (CRWQCB, 2005).

In compliance with the federal Clean Water Act, each Regional Board has identified Section 303(d) water quality limited streams, lakes and coastal waters for development of TMDL criteria. A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water.

Regional and Local

Most counties and cities have floodplain and drainage regulations that regulate floodplain development. These regulations generally prohibit floodplain development that will result in flooding of the development, and prohibit floodplain development that will result in adverse flooding impacts on other property. For instance, floodplain encroachments that raise water levels on other property are generally prohibited, as are diversions and concentrations of flow.

Environmental Impacts and Mitigation Measures for the Proposed Project

D.12.4 Significance Criteria and Approach to Impact Assessment

This section explains how impacts are assessed including the presentation of the significance criteria in Section D.12.4.1 on which impact determinations are based. Section D.12.4.2 lists the Applicant Proposed Measures relevant to hydrology and water resources impacts, and Section D.12.4.3 lists all impacts identified for the Proposed Project and alternatives.

D.12.4.1 Significance Criteria

Significance criteria are based on those listed in CEQA Appendix G, modified to be applicable and relevant to anticipated impacts of the Proposed Project. Hydrology and water resources impacts would be significant if the project would:

- Violate any water quality standards or waste discharge requirements, create new sources of polluted runoff, or otherwise substantially degrade water quality.
- 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).
- Place within a watercourse or flood hazard area structures which would impede or redirect flood flows, or otherwise 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 onsite/offsite.
- Substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite/offsite, or otherwise create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.
- Result in or is subject to damage from inundation by mudflow.

D.12.4.2 Applicant Proposed Measures

Table D.12-6 presents the Applicant Proposed Measures (APMs) that are relevant to water resources. These APMs are part of the project, and the impact analysis assumes that all APMs will be implemented as defined in the table. As stated in EIR/EIS Section B.6, SDG&E has committed to implementing these measures in order to reduce the potential direct and indirect impacts that could result from the Proposed Project construction or operation.

Table D.12-6. Applicant Proposed Mitigation Measures for Water Resources

Number	Description
WQ-APM-1	All construction and maintenance activities shall be conducted in a manner that minimizes disturbance to riparian/ wetland vegetation, drainage channels, and intermittent and perennial stream banks to the extent feasible.
WQ-APM-2	To the extent feasible, structures shall be placed so as to avoid sensitive features such as watercourses, or to allow conductors to clearly span the features, within limits of safety and standard structure design.
WQ-APM-3	Specific sites as identified by authorized agencies (e.g., fragile watersheds) where construction equipment and vehicles are not allowed shall be clearly marked on-site before any construction or surface disturbing activities begin. Construction personnel shall be trained to recognize these markers and understand the equipment movement restrictions involved.
WQ-APM-4	1. Adequate distance from stream banks and beds will be maintained during construction activities. 2. Construction activities will use existing bridges to cross major streams and culverts in most dry intermittent streams. 3. Surface water, riparian areas and floodplains will be spanned where feasible. 4. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented. 5. Storm Water Best Management Practices (BMPs) for construction will be implemented per the requirements of the project's SWPPP. 6. Silt fencing, straw mulch, straw bale check dams would be installed as appropriate to contain sediment within construction work areas and staging areas. Where soils and slopes exhibit high erosion potential, erosion control blankets, matting, and other fabrics, and/or other erosion control measures will be used. 7. The potential for increased sediment loading will be minimized by limiting road improvements to those necessary for project construction, operation and maintenance. 8. Upland pull sites will be selected to minimize impacts to surface waters, riparian areas, wetlands and floodplains. 9. Structures will not be placed in streambeds or drainage channels to the extent feasible.
WQ-APM-5	Any stream crossings will be constructed at low flow periods and, if necessary, a site-specific mitigation and restoration plan would be developed.
WQ-APM-6	1. Designated surface water protection areas (source water) will be avoided where feasible. 2. There will be no diversions, detention, retention or consumption of surface waters for the project. 3. Prior to construction, interviews would take place with affected landowners regarding location of water supply wells located on their property. 4. SDG&E will negotiate with affected landowners to provide alternative water supplies in the event a supply well or springs dry up directly caused by project activities. Negotiation shall be by either a remedial cash payment to the landowner or by SDG&E contracting for the drilling of a replacement well.
WQ-APM-8	1. In no case will groundwater removed during construction be discharged to surface waters or storm drains without first obtaining any key permits. 2. If dewatering is necessary, the water will be contained and sampled to determine if contaminants requiring special disposal procedures are present. 3. If the water tests sufficiently clean and land application is determined feasible per applicable SWRCB and RWQCB requirements, the water would be directed to relatively flat upland areas for evaporation and infiltration back to the water table, used for dust control, or used as makeup for a construction process (e.g., concrete production). 4. Water determined to be unsuitable for land application or construction use would be disposed of in another appropriate manner, such as treatment and discharge to a sanitary sewer system in accordance with applicable permit requirements or hauled offsite to an approved disposal facility.

Table D.12-6. Applicant Proposed Mitigation Measures for Water Resources

Number	Description
WQ-APM-9	Storage of fuels and hazardous materials will be prohibited within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells.
WQ-APM-10	At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, the burial depth shall be extended below the estimated 100-year depth of scour for that stream, or located at a sufficient distance from the bank as to avoid erosion that can reasonably be expected to occur during the life of the project.
WQ-APM-11	Groundwater levels along the underground portion of the project will be tested by drilling pilot borings. The location, distribution, or frequency of such tests shall be determined to give adequate representation of the conditions. Locations where groundwater depth is less than eight feet below ground surface shall be identified prior to excavation activities and avoided, where possible. Avoidance is especially recommended where shallow groundwater flow direction is not parallel to the orientation of the alignment. Where avoidance is not possible, SDG&E shall consider constructing underground facilities in a shallower excavation, depending upon requirements of the underground method or existing underground facilities and other practical concerns. SDG&E shall document results of test drilling in a letter report to the CPUC before construction starts and shall propose specific measures to minimize the impact on groundwater.
WQ-APM-13	Hazardous materials will not be disposed of onto the ground, the underlying groundwater, or any surface water. Totally enclosed containment will be provided for trash. Petroleum products and other potentially hazardous materials would be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials. In the event of a release of hazardous materials to the ground, it will be promptly cleaned up in accordance with applicable regulations.
WQ-APM-14	Secure any required General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization from the State Water Resources Control Board and/or the RWQCB to conduct construction-related activities to build the project and establish and implement a SWPPP during construction to minimize hydrologic impacts.
WQ-APM-15	To the extent feasible, where the construction of access roads would disturb sensitive features such as streambeds, the route of the access road would be adjusted to avoid such impacts. Whenever practicable, construction and maintenance traffic would use existing roads or cross-country access routes (including the ROW) which avoid impacts to the sensitive feature. To minimize ground disturbance, construction traffic routes will be clearly marked with temporary markers such as easily visible flagging. Construction routes, or other means of avoidance, must be approved by the appropriate agency or landowner before use. Where it is not feasible for access roads to avoid streambed crossings, such crossings would be built at right angles to the streambeds whenever feasible. Where such crossings cannot be made at right angles, SDG&E would limit roads constructed parallel to streambeds to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in such a manner that minimizes potential adverse impacts on waters of the U.S. or waters of the state. Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and SWRCB/RWQCB.
WQ-APM-16	If sensitive water resource features contain riparian areas, habitats of endangered species, streambeds, cultural resources, and wetlands which cannot be avoided, a qualified biological contractor shall conduct site-specific assessments for each affected site. These assessments shall be conducted in accordance with ACOE wetland delineation guidelines, as well as CDFG streambed and lake assessment guidelines, and shall include impact minimization measures to reduce wetland impacts to a less than significant effect (e.g., through creation or restoration of wetlands). Though construction or maintenance vehicle access through shallow creeks or streams is allowed, staging/storage areas for equipment and materials shall be located outside of riparian areas. Construction of new access through streambeds that require filling for access purposes would require a Streambed Alteration Agreement from the CDFG and/or consultation/approval ACOE and SWRCB/RWQCB. Where filling is required for new access, the installation of properly sized culverts and the use of geotextile matting should be considered in the CDFG/ACOE consultation process.

D.12.4.3 Impacts Identified

Table D.12-7 lists the impacts identified for the Proposed Project and alternatives, along with the significance of each impact. Detailed discussions of each impact and the specific locations where each is identified are presented in the following sections. Impacts are Classified as Class I (significant, cannot be mitigated to a level that is less than significant), Class II (significant, can be mitigated to a level that is less than significant), Class III (adverse, but less than significant), and Class IV (beneficial).

Table D.12-7. Impacts Identified – Hydrology and Water Resources

Impact No.	Description	Impact Significance
Proposed Project		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II, III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II, III
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class II, III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II~~I~~
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class II, III
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion	Class II
H-7	Accidental releases of contaminants from project facilities could degrade water quality	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
Proposed Project – Future Expansion		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class II
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
Proposed Project – Connected Actions		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II, III
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class II, III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II, III
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class II, III
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion	Class II, III
H-7	Accidental releases of contaminants from project facilities could degrade water quality	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II, No Impact

D.12.5 Imperial Valley Link Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the Proposed Project. However, Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property, does not apply. There are no underground portions of the project in this link.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the overhead transmission line towers, substations, pull stations, and access roads, would require excavation and grading for roads and towers. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Downstream beneficial uses could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity. ~~T~~his impact would apply to all watercourses along the route (Table D.12-1).

Although the New River, into which runoff-borne sediments would be transported, has a TMDL for sedimentation, the Regional Water Quality Control Board does not consider runoff-related sedimentation to be a significant problem. Streams crossed by the Imperial Valley Link are dry except during infrequent periods of brief rainfall of sufficient intensity to produce runoff. Further, APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is minimal and less than significant (Class III). This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts. Impact H-1 is considered not significant (Class III) and no mitigation is required.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, cement slurry, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. Downstream beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. This impact applies to all watercourses along the route (Table D.12-1), and the Imperial Valley, Ocotillo-Clark Valley and Borrego Valley basins.

The dry nature of the surface streams is such that should material spills occur, these could easily be cleaned up prior to water being contaminated (because water is not generally flowing). Groundwater basins potentially affected generally have groundwater deeper than 40 feet, which would be below the maximum depth of excavation (see Section D.12.2.1). With shallow excavation and deeper groundwater, there is little likelihood that groundwater could be affected during construction. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of

hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Because of the dryness of the area, the depth to groundwater, and the APMs, Impact H-2 is less than significant (Class III) and no mitigation is required.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Excavation for tower foundations in shallow groundwater could contaminate groundwater through accidental material spills. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for chemical and physical quality. This impact is unlikely to occur primarily for the reason that groundwater in the Imperial Valley and Ocotillo-Clark basins at the location of the project is typically deeper than the expected depth of excavation (the maximum excavation depth will be 40 feet in comparison to at least 40 feet depth for groundwater), resulting in little chance for direct contamination. Although some Borrego Valley groundwater may be within the excavation depth, the potential for encountering this groundwater is slight since most recorded groundwater depths in that area are more than 40 feet (California Department of Water Resources, 2007). APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 address this issue as follows: (1) WQ-APM-8 requires proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) WQ-APM-9 ensures that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) WQ-APM-11 calls for determining the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. Impact H-3 is classified as less than significant (Class III) and no mitigation is required.

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II~~I~~)

Dewatering, the elimination of water from waterways so that excavation can occur, for tower construction in the Imperial Valley and Ocotillo-Clark groundwater basins could result in a local and temporary drawdown of groundwater levels, temporarily reducing the yield of nearby water supply wells. In addition, blasting or drilling for tower foundations could reduce flows in wells and springs. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for groundwater overdraft. Depth to the Imperial Valley groundwater is generally greater than 40 feet and to the Ocotillo-Clark groundwater is 240 feet. As well, water supply wells are typically deeper than the proposed maximum excavation depth of 40 feet, so a temporary drawdown limited to that depth likely will not affect water yield. APM WQ-APM-6 requires identification of these wells and provision of alternate water supplies during the period of depletion. ~~Providing an alternative supply makes the effects of this impact less than significant (Class III) and no mitigation is required.~~ Nonetheless, reduced water flows in wells and springs would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measures H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b **Avoid blasting where damage to groundwater wells or springs could occur.** Blasting shall be managed with a Blasting Plan for each site. The Plan shall include the blasting methods, distance calculations to estimate the area of effect of the blasting, and surveys for wells and springs within the blast influence area (no less than ½ mile from the blasting location). Blasting shall not be allowed where damage to wells or springs could occur according to the Applicant's Blasting Plan, and a rock anchoring or mini-pile system shall be used if these resources could be damaged as a result of blasting or any earthworking method used as an alternative to blasting. Where inadvertent damage to wells within an EPA-designated Sole Source Aquifer occur as a result of earthwork, the Applicant shall compensate the land-owner in the form of well repair or replacement, and shall provide the landowner with a water storage tank and sufficient potable water within 48 hours and throughout the interim between damage and repair or replacement. Where inadvertent damage to other wells or springs occurs as a result of earthwork, the Applicant shall compensate the landowner in the form of remedial cash payment, repair, or replacement, as appropriate. The burden of proof of no impact shall rest with the Applicant.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of substations, tower foundations and access roads would result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the Proposed Project, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Access roads, although compacted, will be pervious to rainfall. Local increases in runoff from access roads will flow to adjacent pervious areas where infiltration will dampen the small runoff increase. Most of the project consists of towers with a very small footprint (On the order of 64 square feet each. It would take about 30 towers to equal the impervious area of a medium-sized house). Tower lattice structures and power lines are impervious to rain, but are above the ground surface and have no effect. In fact, the effect of these is to reduce runoff by capturing and holding the small amount of rain that adheres to them. Overall, the effect of Impact H-5 is negligible. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III) and no mitigation is required. In general, and except as otherwise described in this document, this discussion applies to all project links and alternatives.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Impact H-6 is likely to occur only where power poles or other permanent project features are constructed in or closely adjacent to a watercourse.

Table D.12-8 lists 14 towers that may potentially be at low to moderate risk of Impact H-6. The level of risk presented in Table D.12-8 (and subsequent tower impact tables for other links) is based on a qualitative assessment from review of aerial photographs and reflects proposed tower placement with regard to nearby stream channels, stream channel size, and relative watershed size. The purpose of this table and subsequent tables like it is to present an overview of the relative level of risk of Impact H-6 for informational and comparison purposes.

Table D.12-8. Towers at Risk of Impact H-6 in the Imperial Valley Link

Tower	Level of Risk
SWP 11, 12, D 97	Low
D 56	Moderate
D 40	Moderate
D 39	Moderate
D 30	Low
D 27	Low
D 16	Low
SP 179	Low
SP 178	Low
SP 177	Low
SP 176	Low
SP 175	Low

APM WQ-APM-2 calls for avoidance of stream channels where possible. However, as indicated in Table D.12-8, complete avoidance in this link may be difficult. APM WQ-APM-10 requires project features to be buried below the 100-year depth of scour. Since the facilities involved in this link are power line towers, burial of the foundations to a depth sufficient to protect from scour is feasible and effective as protection for the tower. However, migration of stream channels and bank scour may pose a significant impact on towers. APMs WQ-APM-2 and WQ-AMP-10 do not provide sufficient detail on what considerations need to be taken into account. Therefore, Mitigation Measure H-6a will be implemented to ensure impacts will be less than significant (Class II). Please note the full text of all mitigation measures is in Appendix 12.

Mitigation Measure for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a **Scour protection to include avoidance of bank erosion and effects to adjacent property.** A determination of towers requiring scour protection under WQ-APM-10 shall be made during the design phase by a registered professional engineer with expertise in river mechanics. All towers within the project shall be reviewed by the river mechanics engineer and the foundations of those towers determined to be subject to scour or lateral movement of a stream channel shall be protected by burial beneath the 100-year scour depth, setbacks from the channel bank, or bank protection as determined by the river mechanics engineer. An evaluation shall also be made regarding the potential for the tower and associated structures to induce erosion onto adjacent property. Should the potential for such erosion occur, the tower location shall be moved to avoid this erosion, or erosion protection (such as rip rap) provided for the adjacent property. This evaluation, and associated scour/erosion protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction of the towers.

The towers listed in Table D.12-8 are presented as a preliminary determination of those towers that are likely subject to Mitigation Measure H-6a. Low risk towers are in the vicinity of a stream but, based on a qualitative evaluation appear safe from erosion and scour. Moderate risk towers are near a stream and may be subject to erosion or scour. Because of their location, towers not listed are considered to be not at risk of scour or erosion. Table D.12-8 is not to be construed as a comprehensive or final listing of towers subject to Mitigation Measure H-6a; final engineering may define other towers potentially affected.

Modifications to Imperial Valley Substation

A number of the potential water resources impacts associated with the Proposed Project elsewhere do not apply to the Imperial Valley Substation modifications. This is because the construction would occur within the existing footprint and disturbed area of the substation. There is no shallow groundwater or surface water that would be degraded, there are no new impervious surfaces that would yield sufficient runoff to cause flooding or erosion, the substation is not located in a floodplain, and there are no underground facilities. Specifically, the following would not apply: Impact H-1, construction activity could degrade water quality due to erosion and sedimentation; Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials used during construction, such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could wash into and pollute surface waters or groundwater. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. ~~However,~~ APMs regarding spills address this potential impact. APMs WQ-APM-9 and WQ-APM-13 address the issue of water quality contamination through material spills. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. See Section D.10, Public Health and Safety. Furthermore, all construction would be within the existing disturbed footprint of the substation. Local surface streams are minor and usually dry. The local Imperial Valley Groundwater Basin is at least 40 feet below the substation and direct disturbance during construction will not occur. A construction SWPPP, required by regulation, will address the issue of spill prevention, containment and clean-up. Therefore, Impact H-2 is considered less than significant (Class III) because such spills would not substantially degrade water quality, and no mitigation is required.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment at the Imperial Valley Substation could be released accidentally and contaminate local surface water or groundwater. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. However, WQ-APM-13 does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project operation. Therefore, Impact H-7 would be significant. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a **Develop Hazardous Substance Control and Emergency Response Plan for project operation.** SDG&E shall prepare and implement a Hazardous Substance Control and Emergency Response Plan for project operation, and a copy shall be kept onsite at substations. This plan shall include definition of an emergency response program to ensure quick and safe cleanup of accidental spills, including prescriptions for hazardous-material handling to reduce the potential for a spill during construction. The plan will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted. These directions and requirements will also be reiterated in the project SWPPP. SDG&E shall submit this Response Plan to the CPUC and BLM for review and approval at least 60 days before construction.

D.12.6 Anza-Borrego Link Impacts and Mitigation Measures

There would be no project facilities in the Anza-Borrego Link that have contaminants. As such, Impact H-7, accidental releases of contaminants from project facilities could degrade water quality, would not apply in this link.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

As described for the Imperial Valley Link, construction of overhead transmission line towers, substations, pull stations, and access roads, would require excavation and grading. This link would also include installation of the 92 kV and 69 kV lines underground within SR78. Soil disturbance during construction could result in erosion and lower water quality through increased turbidity and sediment deposition into local streams. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity Table D.12-2 lists the streams that would be at risk within the Anza-Borrego Link.

Although the underground portions of this link would be trenched across stream channels, this impact would not affect flowing surface water due to the dry conditions of this region. APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is minimal and less than significant (Class III). This would be accomplished through: (1) minimizing disturbance to drainage channels (WQ-APM-1); (2) avoiding or spanning watercourses with project structures (WQ-APM-2); (3) marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) complying with erosion control best management practices (WQ-APM-4); (5) conducting stream crossing construction at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts. These APMs would ensure that Impact H-1 is less than significant (Class III) in the Anza-Borrego Link and no mitigation is required.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater, degrading water quality. Materials that could contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents (surface water) and chemical and physical quality (groundwater). This impact would apply to all watercourses along the route (Table D.12-1), as well as to the Borrego Valley and Yaqui Well Area groundwater basins. See Section D.12.2.3 for specific groundwater locations.

APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills by ensuring that excavated groundwater (if contaminated) not be returned to the natural system, proper storage and handling of hazardous materials, and proper materials disposal and clean-up during construction. APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Therefore, construction activity would not substantially degrade water quality and Impact H-2 would be less than significant (Class III).

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Impact H-3 is a potential impact to the Borrego Valley and Yaqui Well Area basins. Table D.12-2 gives groundwater locations. There is a small possibility that excavation would degrade areas of shallow groundwater. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for chemical and physical quality. Tower excavation depth will be less than 30 feet, and at the underground portions, specifically between MP 68.2 and the Tamarisk Grove Campground near MP 75, including Sunset Wash, Nude Wash, Quartz Vein Wash, Pinyon Wash, Mine Wash, Chuckwalla Wash, San Felipe Creek, and unnamed washes at MPs 68.2, 68.5, 71.0, and 71.3, excavation depth will be approximately 6 feet. Depth to groundwater is reported as more than 110 feet below the ground surface in the Borrego Valley basin. Water depth information is not available for the Yaqui Well Area Basin, so there may be a potential for groundwater to be encountered by project excavation in this area, but based on the depth to groundwater in surrounding groundwater basins, this potential is considered small. APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 include the following practices: (1) proper disposal of excavated groundwater contaminated by construction; (2) storage of hazardous materials away from groundwater wells; and (3) determining the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. These APMs are considered part of the Proposed Project. Impacts to groundwater quality would be less than significant (Class III) and no mitigation is required.

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II~~I~~)

Tower construction in the Borrego Valley and Yaqui Well Area groundwater basins (see Table D.12-2 for locations where this could potentially occur) could result in a very local and temporary drawdown of groundwater levels, due to water being withdrawn from trenches or excavation pits. This could temporarily reduce the yield of any nearby water supply wells. In addition, blasting or drilling for tower foundations could reduce water flows in wells and springs. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for groundwater overdraft..

This impact is unlikely in the Borrego Valley basin because the depth to groundwater is at least 110 feet is deeper than the maximum 40-foot excavation. Depth to groundwater is unknown in the Yaqui Well Area basin, so it assumed Impact H-4 could occur in this basin, particularly in those areas west of MP 75 (see Table D.12-2). Should this occur, WQ-APM-6 requires identification of all potentially affected wells and provision of alternate water supplies (e.g., via trucks) during the period of depletion. ~~This would make the effects of this impact less than significant because water would always be provided (Class III) and no mitigation is required.~~ Nonetheless, reduced water flows in wells and springs would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measures H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of substations, tower foundations and access roads would result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the Proposed Project, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff is not likely to have an appreciable impact. New impervious areas along the Anza-Borrego Link would be minimal and insignificant with regard to the overall watershed, resulting in no significant increase in runoff or flooding (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

As described with respect to the Imperial Valley Link, encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Impact H-6 is likely to occur only where power poles or other permanent project features are constructed in or closely adjacent to a watercourse.

Table D.12-9 provides a list of towers at risk for creating flooding, flood diversions, or erosion (Impact H-6). A total of 81 structures in the Anza-Borrego Link have been identified as at low to high risk of adverse impact resulting from being in or near a stream channel. APMs WQ-APM-2 and WQ-APM-10, call for avoidance of stream channels where possible, and burial of tower foundations below the scour depth. Whereas these measures will protect the towers from erosion, there is a potential for the towers, as obstructions to flow, to exacerbate erosion to the detriment of adjacent property. Therefore, Impact H-6 would be significant, and mitigation is required. By providing for more detailed evaluations, Mitigation Measure H-6a will reduce this risk to a less than significant level (Class II). The full text of all mitigation measures is in Appendix 12.

Table D.12-9. Towers at Risk of Impact H-6 in the Anza-Borrego Link

Tower	Level of Risk	Tower	Level of Risk
SP 174	Moderate	SP 107	Low
SP 173	Moderate	SP 106	Low
SP 172	Moderate	SP 102	Low
SP 171	Moderate	SP 99	Low
SP 169	Low	SP 97	Low
SP 167	Low	SP 96	Moderate
SP 166	Low	SP 95	High
SP 165	Low	SP 94	High
SP 163	Low	SP 93	Moderate
SP 162	Moderate	SP 92	High
SP 161	Moderate	SP 91	High
SP 152	Moderate	SP 89	High
SP 151	Low	SP 88	High
SP 150	Low	SP 87	High
SP 149	Low	SP 86	High
SP 148	Moderate	SP 85	Low
SP 147	Low	SP 84	High
SP 145	Low	SP 78	Moderate
SP 143	Low	SP 76	Moderate
SP 142	Moderate	SP 74	Low
SP 141	Low	SP 72	Low
SP 140	Low	SP 71	Low
SP 139	Low	SP 70	Low
SP 138	Low	SP 69	Moderate
SP 137	Low	SP 65	Moderate
SP 136	Low	SP 64	Moderate
SP 135	Low	SP 62	Moderate
SP 134	Low	SP 61	Low
SP 133	Low	SP 60	Low
SP 132	Low	SP 59	Low
SP 130	Low	SP 58	High
SP 129	Low	SP 56	Moderate
SP 128	Low	SP 55	High
SP 127	Low	SP 54	High
SP 121	Low	SP 47	Low
SP 119	Moderate	SP 40	Low
SP 118	High	SP 37	High
SP 117	High	SP 26	Moderate
SP 116	High	SP 23	Moderate
SP 115	High	SP 16	Moderate
SP 112	Moderate		

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

The towers listed in Table D.12-9 are presented as a preliminary determination of those towers that are likely subject to Mitigation Measure H-6a. Low risk towers are in the vicinity of a stream but, based on a qualitative evaluation are at a low risk from erosion and scour. Moderate risk towers are near a stream and may be subject to erosion or scour. High risk towers are considered highly susceptible to scour or erosion due to their location near waterways, and will require implementation of Mitigation Measure H-6a. Towers not listed are considered not to be at risk of scour or erosion due to their distance from waterways. Table D.12-9 is not to be considered as a comprehensive or final listing of towers subject to Mitigation Measure H-6a.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

During flow events the stream channel bed can become scoured to the point where objects buried beneath them could be exposed. The depth of scour is generally greater with larger magnitude flood events. Exposure of the buried line could result in damage to the line or in damage to adjacent property as the exposed line exacerbates the potential for local scour. At places where the buried power line crosses below stream beds, the burial depth should be great enough to protect against scour.

The buried portion of the relocated 92 kV circuit in the Anza-Borrego Link between MP 68.2 and the Tamarisk Grove Campground near MP 75 will be in the SR78 roadway, which crosses several large watercourses. These include the Sunset Wash, Nude Wash, Quartz Vein Wash, Pinyon Wash, Mine Wash, Chuckwalla Wash, San Felipe Creek, and unnamed washes at MPs 68.2, 68.5, 71.0, and 71.3. Since these are large, unstable watercourses which will be flowing over the power line during large floods, there is a potential for scour which could expose the power line with risk of power outage.

Whereas the roadway would provide some protection, these desert roadway watercourse crossings are typically at-grade or with relatively small culverts which could be overtopped or bypassed by large floods, resulting in scour damage to the roadway as well as the power line. Mitigation Measure H-8a, which is to be applied to Sunset Wash, Nude Wash, Quartz Vein Wash, Pinyon Wash, Mine Wash, Chuckwalla Wash, San Felipe Creek, unnamed washes at MPs 68.2, 68.5, 71.0, and 71.3, and any other stream crossing capable of scour as determined by engineers during the design analysis, will ensure proper burial of the power line and thereby render Impact H-8 less than significant (Class II).

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a **Bury power line below 100-year scour depth.** At locations where the buried power line is to be at or adjacent to a stream bed capable of scour, the power line shall be located below the expected depth of scour from a 100-year flood, or otherwise protected from exposure by scour which, for purposes of this mitigations measure, also includes lateral (streambank) erosion and potential scour associated with flows overtopping or bypassing a culvert or bridge crossing. During final design, a registered civil engineer with expertise in hydrology, hydraulics, and river mechanics shall make a determination of where the underground line could be at risk of exposure through scour or erosion from a 100-year event. Plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion, shall be submitted to CPUC for review and approval prior to construction.

D.12.7 Central Link Impacts and Mitigation Measures

Two impacts applicable to other parts of the Proposed Project do not occur in the Central Link. Impact H-7, accidental releases of contaminants from project facilities could degrade water quality, applies only at substations, so does not apply except within the Central East Substation. Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property, does not apply because there are no underground portions except as otherwise described under Impact H-6.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Table D.12-3 lists the streams that are potentially at risk of water quality degradation due to construction-induced erosion and sedimentation in the Central Link. These include Santa Ysabel Creek and Lake Henshaw. Construction of the overhead transmission line towers, substations, pull stations, and access roads, would require excavation and grading for roads and towers. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams, as described for the Imperial Valley and Anza-Borrego Links. However, the risk of surface water contamination from soil disturbance and spills is higher and more pronounced for the Central Link than for the previous links due to the more likely presence of surface water in nearby streams during construction. This could result in an adverse effect to beneficial uses for surface water through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

Whereas there is a higher potential for encountering surface flows during construction than for the desert links, this impact is still considered less than significant (Class III) for the reasons described below.

The project construction footprint is small in relation to the watershed area of the streams crossed, meaning that the capacity of the construction to produce sediment is relatively low. For example, the total area of project disturbance within the Central Link is estimated at approximately 100 acres. By comparison, typical watershed size for single stream crossings is 640 acres, with some much larger, and there are 36 crossings identified.

With regard to the potential occurrence of stream flows during construction, summer (dry season) flows in the Central Link occur in only a few of the largest streams. Specific stream flow data for the Central Link are not available, but Santa Ysabel creek near Ramona, which has records, drains from the area of the Central Link, and would have similar hydrology, can be used as a representative reference. Santa Ysabel Creek at Ramona, with a drainage area of 112 square miles (approximately 50 square miles downstream of Sutherland Lake), produces a dry season discharge averaging only about 0.5 cubic feet per second (cfs). Most of the streams listed in Table D.12-3 have watersheds that are about one square mile in area, ranging up to roughly 10 square miles for Matagual and Santa Ysabel Creeks. Based on the ratio of watershed size to Santa Ysabel Creek flow at Ramona, typical dry season flows along the Central Link would average roughly 0.01 cfs (or approximately four gallons per minute) to non-existent, and range up to 0.1 cfs (approximately 40 gallons per minute).

Construction-related sediment impacts to stream flow are addressed through the implementation of best management practices which are incorporated into the project through the proposed APMs. Effective best management practices include avoidance of stream channels wherever possible, minimization of stream impacts where avoidance is not possible through construction at times when the stream is dry or at low

flows, and implementing erosion control and sediment containment practices during construction. APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-9, WQ-APM-13, WQ-APM-14, and WQ-APM-15 incorporate all of these best management practices. Therefore, Impact H-1 would be less than significant (Class III) and no mitigation is required.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials used during construction, such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could wash into and pollute surface waters or groundwater within the Central Link. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This impact would apply to the watercourses listed in Table D.12-3, Lake Henshaw (because it is downstream of the route), and the Warner Valley Groundwater Basin, which is crossed by about three miles of the project.

Surface water contamination through material spills is more of a concern on the Central Link than on the desert links because more stream flows exist along the Central Link. Still, as described above for Impact H-1 in the Central Link, most would be dry during construction. APMs WQ-APM-9, WQ-APM-13, and WQ-APM-14 will ensure proper handling, disposal and clean-up of hazardous material during construction. The required construction SWPPP would identify best management practices for spill prevention, containment and clean-up. APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible such that spills would be unlikely to reach flowing water. Consequently, Impact H-2 is less than significant (Class III) and no mitigation is required.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

The depth to groundwater in the Warner Valley Groundwater Basin may be as shallow as 15 feet, resulting in a potential for this groundwater to be encountered by the tower excavations, which would reach 20 to 40 feet. Should this occur, dewatering of the excavation may be required for construction, with the possible result of water contamination and adverse effect on beneficial uses through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Dewatering could uncover groundwater contaminants, including high sodium and fluoride levels (SDG&E, 2006). This issue is addressed by APMs WQ-APM-1, WQ-APM-2, WQ-APM-9, WQ-APM-13, WQ-APM-14, and WQ-APM-15, and the construction SWPPP. In addition, WQ-APM-8 requires that dewatering water be monitored and disposed of properly to avoid contamination of the remaining natural groundwater. Therefore, Impact H-3 would be less than significant (Class III) and no mitigation is required.

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II~~I~~)

Dewatering for tower construction in the Warner Groundwater Basin could result in a local and temporary drawdown of groundwater levels which could temporarily reduce the yield of nearby water supply wells. In addition, blasting or drilling for tower locations could reduce water flows in wells and springs. Should this occur, APM WQ-APM-6 requires identification of wells with decreased ~~wells~~ yield and provision of alternate water supplies during the period of depletion~~, which makes this impact less than significant (Class III)~~. It is possible that excavation for the towers listed in Table D.12-10 would encounter local subsur-

Table D.12-10. Towers at Risk of Impact H-6 in the Central Link

Tower	Level of Risk
CEA 3	Moderate
C27	Moderate
CA 48	Moderate
C28	Low
CA 50	Low

face water not associated with a designated groundwater basin, and result in the need for dewatering. This could result in a local drawdown of water levels that could temporarily affect the water supply to local vegetation. This impact would be temporary and localized and would not have any long-term adverse effect ~~(Class III)~~. However, reduced water flows in wells and springs would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measures H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of substations, tower foundations and access roads would result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the Proposed Project, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff is not likely to have an appreciable impact. New impervious areas along the Anza-Borrego Link would be minimal and insignificant with regard to the overall watershed, resulting in no significant increase in runoff or flooding (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Impact H-6 is likely to occur only where power poles or other permanent project features are constructed in or closely adjacent to a watercourse.

Table D.12-10 provides a list of towers at risk of Impact H-6. (Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion.) A total of 5 structures have been identified as at low to moderate risk of adverse impact resulting from being in or near a stream channel. This is far less than for the two desert links. Further, there are no high-risk towers identified. The risk of Impact H-6 for the Central Link is relatively low and addressed by WQ-APM-2 and WQ-APM-10, which require avoiding watercourses wherever possible and designing structures for 100-year scour. However, without mitigation, Impact H-6 would be significant. With Mitigation Measure H-6a in place, Impact H-6 would be reduced to less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measure for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

The towers listed in Table D.12-10 are presented as a preliminary determination of those towers that are likely subject to Mitigation Measure H-6a. Low risk towers are in the vicinity of a stream but, based on a qualitative evaluation appear safe from erosion and scour. Moderate risk towers are near a stream

and may be subject to erosion or scour. Because of their location, towers not listed are considered to be not at risk of scour or erosion. Table D.12-10 is not to be construed as a comprehensive or final listing of towers subject to Mitigation Measure H-6a; final engineering may define additional towers at risk.

Proposed Central East Substation

A number of the potential Water Resources impacts associated with the Proposed Project elsewhere do not apply to the proposed Central East Substation. This is because there is no groundwater basin at the site. Therefore, Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater, and Impact H-4, groundwater dewatering for project construction could deplete local water supplies, do not apply.

In the case of the Central East Substation site, Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion, is closely related to Impact H-5. These issues are addressed under Impact H-5 for the substation. Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property, applies to underground portions of the transmission line, not the substation.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

The Central East Substation would require a substantial amount of local grading (approximately 100 acres) involving 1.5 to 1.8 million cubic yards of cut and fill earthwork. A drainage plan will be required. This substation is in a mountainous area where existing drainage ways are at or near their headwaters, meaning watershed areas are small and surface flows minimal and infrequent except during periods of rainfall. Since grading will be substantial, the potential for erosion of cut and fill slopes would be substantial during a rainfall event. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. D~~but d~~isturbance of surface flows during construction is unlikely due to the upland location (there is little flow through the site; it would originate onsite).

WQ-APM-14 requires compliance with General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization from the State Water Resources Control Board and/or the RWQCB for construction activities. Compliance would require development of a SWPPP which would describe implementation of erosion control best management practices which would include measures such as soil binders, hydroseeding, siltation control structures such as geotextiles and mats, and streambank stabilization. Compliance and best management practices would be according to RWQCB guidelines.

Development of and compliance with a SWPPP is normally sufficient to reduce construction effects to a less than significant level. However, due to the extensive grading and earthwork involved in this natural area, standard BMPs may not be sufficient to prevent significant local erosion and downstream watercourse siltation if heavy rains occur during construction. Therefore, Impact H-1 would be significant without mitigation. Mitigation Measure H-1a is required to ensure these impacts are less than significant. Mitigation Measure H-1a requires grading to occur during the dry season to avoid water quality impacts, and erosion and sediment control BMPs to be in place prior to the onset of seasonal rains. With implementation of Mitigation Measure H-1a, Impact H-1 would be less than significant (Class II).

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a **Prepare Substation Grading and Drainage Plan; construct during the dry season.** Prior to construction of new substations, a grading and drainage plan, with SWPPP for construction and post-construction BMPs (as defined by the RWQCB), shall be prepared and submitted to the CPUC and RWQCB for review and approval. All grading for the substation shall occur either during the dry season months, or a settling pond shall be installed on the construction site with sufficient capacity to contain expected runoff during a rainfall event. In addition, for construction during a rainfall event, construction shall cease when rutting occurs in greater than 10% of the road or when rills more than 10 feet in length develop and lead off the road surface in the work area. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains.

Effect of Mitigation Measure H-1a: It is expected that the settling pond would be installed on the construction site for the substation. Impacts of the construction of the substation, including habitat loss and earth movement, were considered in Section D of the Draft EIR/EIS for the entire 106-acre substation. Construction of the settling pond results in relatively small earth movement, in comparison to the scale of substation construction and grading, resulting in only a marginal increase in impacts of the substation construction. The overall effect of the implementation of Mitigation Measure H-1a would be less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Accidental spills or disposal of potentially harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Although it is likely that some spills will occur in this large construction area, surface water resources in the area are limited and there are no groundwater resources. However, without mitigation, this impact would be significant. Mitigation Measure H-1a and H-2d would be required to ensure these impacts are less than significant. Mitigation Measure H-1a requires grading to occur during the dry season to avoid water quality impacts, and erosion and sediment control BMPs to be in place prior to the onset of seasonal rains. Mitigation Measure H-2d ensures that vehicles and equipment will not release harmful materials. With implementation of Mitigation Measures H-1a and H-2d, Impact H-2 would be less than significant (Class II).

Mitigation Measure for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1a **Prepare Substation Grading and Drainage Plan; construct during the dry season.**

H-2d **Maintain vehicles and equipment.** All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they area free of any and all leaks that could escape the vehicle or contact the ground. A vehicle and equipment maintenance log shall be updated and provided to CPUC and BLM once monthly during project construction.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II)

The proposed substation would have a building pad of approximately 40 acres which would have a higher runoff coefficient than the existing ground, resulting in increased local peak flow rates, volumes and runoff frequency. This impact would be local and in the drainageways immediately downstream of the substation. Effects would diminish to negligible in the downstream direction as overall watershed size increases.

Local increases in runoff could be substantial, resulting in local offsite erosion which would occur in the area immediately downstream of the substation. Therefore, Impact H-5 would be significant without mitigation. Mitigation Measure H-5a, which provides additional methods to reduce runoff and runoff impacts, would reduce this impact to less than significant (Class II).

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream

H-5a **Install substation runoff control.** The pad for new substations shall be constructed with a pervious and/or high-roughness (for example, gravel) surface where possible to ensure maximum percolation of rainfall after construction. Detention/retention basins shall be installed to reduce local increases in runoff, particularly on frequent runoff events (up to 10-year frequency). Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimics the natural condition as much as possible. A drainage design hydrologic and hydraulic analysis shall be provided to the CPUC for review and approval prior to the initiation of construction.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment at the Central East Substation could be released accidentally and contaminate local surface water or downstream groundwater. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Due to the upland nature of this site, no spill would enter directly into surface water, although a large spill could travel down the steep drainageways. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With Mitigation Measure H-7a in place, Impact H-7 is classified as less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a **Develop Hazardous Substance Control and Emergency Response Plan for project operation.**

D.12.8 Inland Valley Link Impacts and Mitigation Measures

There are no groundwater basins along the Inland Valley Link, nor are their project facilities containing hazardous substances, therefore Impact H-4, groundwater dewatering for project construction could deplete local water supplies, and Impact H-7, accidental releases of contaminants from project facilities could degrade water quality, do not occur in this link.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of overhead transmission line towers, substations, pull stations, and access roads, would require excavation and grading. This link also includes construction of underground transmission lines, both through the Mt. Gower Preserve and in paved roadways. Soil disturbance during construction could result in erosion and lower water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

Table D.12-4 lists the streams that are potentially at risk of water quality degradation due to construction-induced erosion and sedimentation in the Inland Valley Link. Similar to the Central Link, The Inland Valley Link has the potential for stream flow to be present during the time of construction. However, none of the natural streams listed in Table D.12-4 have large watersheds, so the potential for active flow is relatively low for this region. Also, construction would be conducted during periods of low flow (dry season) as required by APM WQ-APM-5.

Impact H-1 would be less than significant (Class III) for the Inland Valley Link for the same reasons as described for this impact for the Central Link (Section D.12.5.3). Project disturbance, which would be approximately 100 acres (0.15 square miles) for the entire Inland Valley Link, is small in comparison to watershed size, which ranges from approximately 1 to 7 square miles with a total of 29 watersheds. Construction-related sediment impacts would be adverse but less than significant (Class III) through best management practices incorporated into the project in WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-9, WQ-APM-13, WQ-APM-14, and WQ-APM-15, which call for avoidance and minimization of stream channel impacts, constructing at periods of low flows, and implementing RWQCB-approved erosion control and sediment containment practices during construction.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of harmful materials used during construction such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could wash into and pollute surface waters or groundwater within the Inland Valley Link. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This impact would apply to the watercourses listed in Table D.12-4. Although there is no groundwater basin directly below the Inland Valley Link, streams crossed by this link drain to the area of the San Diego River Valley groundwater basin, which could possibly receive contaminants.

Surface water contamination through material spills in the Inland Valley Link could affect active surface flows, particularly if the spills occur during the winter months. However, as described under Impact H-1 above, the streams crossed are small in size and most are expected to be dry during construction, since construction would be conducted during low-flow periods (WQ-APM-5). APMs WQ-APM-9, WQ-APM-13, and WQ-APM-14 will ensure proper handling, disposal and clean-up of hazardous material during construction. The required construction SWPPP will address best management practices for spill prevention, containment and clean-up. APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible such that spills do not reach flowing water. As a result, Impact H-2 would be less than significant (Class III) and no mitigation is required.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. The likelihood of Impact H-3 in the Inland Valley Link is low because this link crosses no designated groundwater basin. Project construction could encounter local groundwater which could be contaminated by material spills or ground disturbance. WQ-APM-8 will ensure that dewatering water is monitored and disposed of properly to avoid contamination of the remaining natural groundwater. APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 include the following practices: (1) proper disposal of excavated groundwater contaminated by construction; (2) storage of hazardous materials away from groundwater wells; and (3) determining the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. These APMs are considered part of the Proposed Project. As a consequence, Impact H-3 will be less than significant (Class III) and no mitigation is required.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of tower foundations and access roads would result in additional runoff through creation of impervious areas and compaction of soils. In the case of the Proposed Project, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. As a consequence, Impact H-5 is less than significant (Class III) and no mitigation is required.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

There are no towers identified as at risk from flooding or erosion in the Inland Valley Link. Towers would not be located in floodplains or watercourses, and would not create flooding, flood diversions, or erosion. The risk of this impact is very low for this link, and APMs WQ-APM-2 and WQ-APM-10 will apply. Should design changes regarding tower locations place towers at risk of flooding and erosion, these APMs would be insufficient and the impact would be significant. However, Mitigation Measure H-6a would reduce Impact H-6 to less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measure for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

During flow events the stream channel bed can become scoured to the point where objects buried beneath them are exposed. The depth of scour is generally greater with larger magnitude flood events. Exposure of the buried line could result in damage to the line or in damage to adjacent property as the exposed line exacerbates the potential for local scour. At places where the buried power line crosses below streambeds, the burial depth should be great enough to protect against scour.

Most of the buried line in the Inland Valley Link will be in a roadway. Field observations indicate that this roadway, with associated culvert crossings, will provide some scour protection which may be adequate protection for the power line. This issue would be revisited by detailed analysis during final design. Further, there is one watercourse crossing at approximately MP 122.5, which could be at risk for the reason that it is outside the roadway (just before the transition to overhead). Mitigation Measure H-8a (Bury power line below 100-year scour depth) will ensure that Impact H-8 is less than significant (Class II) for this link.

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

D.12.9 Coastal Link Impacts and Mitigation Measures

The Coastal Link has no groundwater basins. Therefore, Impact H-4, groundwater dewatering for project construction could deplete local water supplies, does not occur in this link.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of the overhead transmission line towers, substations, pull stations, and access roads, would require excavation and grading for roads and towers. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

Table D.12-5 lists the streams that are potentially at risk of water quality degradation due to construction-induced erosion and sedimentation in the Coastal Link. As with the Inland Valley and Central Links, the Coastal Link has the potential for stream flow to be present during the time of construction, particularly in Los Peñasquitos Canyon/Poway Creek in which there are likely to be dry-season flows. In addition to the crossings listed in Table D.12-5, an underground segment of the project passes parallel to, and within approximately 0 to 150 feet of, the Los Peñasquitos Canyon riparian area between MPs 145 and 146.5.

Impact H-1 would be considered less than significant for the Inland Valley Link for the same reasons as described for this impact for the Central Link (Section D.12.5.3), with the exception of that portion of the project which passes adjacent to Los Peñasquitos Canyon within the Los Peñasquitos Canyon Preserve (administered by the City and County of San Diego). A substantial amount of earth moving such as would be involved with the project trenching, could result in a significant amount of sediment entering Los Peñasquitos Canyon if rains occur during construction, despite the efforts of a standard SWPPP. WQ-APM-5 calls for construction of stream crossings during periods of low flow, but says nothing about construction outside of stream crossings. Although there are seven minor tributary crossings of this underground portion adjacent to Los Peñasquitos Canyon within the Los Peñasquitos Canyon Preserve, low-flow periods for them could be interpreted as occurring at almost any time of the year.

Because of the local importance of the Los Peñasquitos Canyon Preserve, particularly the riparian resource, the amount of excavation that would be involved, and the sensitivity of Los Peñasquitos Canyon, as well as the 303(d)-listed Los Peñasquitos Lagoon (listed for sedimentation/siltation) to water quality degradation, Impact H-1 would still be significant. Mitigation Measure H-1b is required to ensure that SDG&E prepares an adequate SWPPP in order that Impact H-1 is less than significant (Class II).

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1b **Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego.** Construction within the Los Peñasquitos Canyon Preserve (the Preserve) shall occur during the summer (dry season) months. Project construction plans and the SWPPP for project construction shall be submitted to the CPUC, the City of San Diego and the County of San Diego for review and approval prior to construction. The SWPPP shall address erosion and sedimentation control, groundwater dewatering procedures, hazardous materials identification, handling, disposal and emergency spill procedures, and any other best management procedures necessary to prevent contaminants from entering the waters of the preserve, including consideration of using directional drilling. Construction activities within the Preserve shall be open to City and County monitors who shall have the authority to ensure compliance with the approved SWPPP.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Accidental spills or disposal of potentially harmful materials used during construction such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur as is described for the other links. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This impact would apply to the watercourses listed in Table D.12-5, and in particular to the Los Peñasquitos Canyon Preserve. APMs WQ-APM-5, WQ-APM-9, WQ-APM-13, and WQ-APM-14, with the required construction SWPPP, will ensure less than significant impact for that portion of the Coastal Link that is outside the Preserve. However, within the Preserve, Impact H-2 would be significant. Implementation of Mitigation Measures H-1b and H-2d would reduce this impact to less than significant (Class II).

Mitigation Measure for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1b **Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego.**

H-2d **Maintain vehicles and equipment.**

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Although there is no designated groundwater basin beneath the Coastal Link, trenching adjacent to Los Peñasquitos Canyon could encounter local groundwater which could be closely associated with surface flows. Groundwater contamination in this area could affect surface flows within the Preserve. WQ-APM-8 and WQ-APM-11 will ensure proper disposal of excavated groundwater contaminated by construction, avoid shallow groundwater where possible, and methods for avoiding impacts where shallow groundwater cannot be avoided. However, due to the sensitivity of the Preserve, Impact H-3 would be significant without Mitigation Measure H-1b to reduce impacts to less than significant (Class II).

Mitigation Measure for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-1b Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

The impervious area created by the new towers and foundations is minimal as compared to the size of the watershed. Clearance at each tower would be approximately 100 by 100 feet, but permanent impervious areas would occur only at each footing. Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream, is less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

There are no towers identified as being at risk from flooding or erosion in the Coastal Link due to their location outside of active waterways. Consequently, the risk of Impact H-6 is very low. Should changes to planned tower locations place towers at risk of flooding and erosion, APMs WQ-APM-2 and WQ-APM-10 will be implemented. However, these APMs would still be insufficient and the impact to at-risk towers would be significant. Therefore, Mitigation Measure H-6a would be implemented. Mitigation Measure H-6a would reduce Impact H-6 to less than significant (Class II) by protecting adjacent properties. The full text of all mitigation measures is in Appendix 12.

Mitigation Measure for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

During flow events a stream channel bed can become scoured to the point where objects buried beneath them are exposed. The depth of scour is generally greater with larger magnitude flood events. Exposure of the buried line could result in damage to the line or in damage to adjacent property as the exposed line exacerbates the potential for local scour. At places where the buried power line crosses below streambeds, the burial depth should be great enough to protect against scour.

Approximately 4 miles of the Coastal Link would be underground. The buried portion of the Coastal Link will cross seven minor drainageways adjacent to the Los Peñasquitos Canyon Preserve. These are small natural drainageways with low potential for scour. There is a larger potential for scour and erosion for the adjacent Los Peñasquitos Canyon channel due to its flow. Lateral erosion from Los Peñasquitos Canyon could occur and expose the power line, resulting in the need for repairs, which could involve disturbance to the stream bed within the Los Peñasquitos Canyon Preserve. Repairs could result in water quality impacts through sedimentation and spills of hazardous materials. Therefore, Impact H-8 would be significant without mitigation. Mitigation Measures H-8a and H-8b would reduce Impact H-8 to less than significant (Class II) for this link by ensuring appropriate burial depths.

Mitigation Measures for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a **Bury power line below 100-year scour depth.**

H-8b **Consider Los Peñasquitos Canyon scour and erosion potential in power line design.** At locations where the buried power line is to be adjacent to Los Peñasquitos Canyon (approximately between MPs 145 and 146.5), the scour and erosion potential for Los Peñasquitos Canyon shall be considered in the design as determined by a registered professional engineer with expertise in river mechanics. Design considerations, which may include burial depth below the adjacent scour depth, extra setbacks, bank protection, or demonstration that the project as proposed will be reasonably safe from Peñasquitos Canyon scour and erosion, shall be reviewed and approved by the CPUC, City of San Diego and County of San Diego prior to the start of construction.

Modifications to Sycamore Canyon Substation

A number of the potential Water Resources impacts associated with the Proposed Project elsewhere do not apply to the Sycamore Canyon Substation. This is because all construction would be within the existing disturbed footprint of the substation, there is no groundwater basin at the site, there is no identified flood hazard in this area, and impacts associated with underground portions of the transmission line do not apply to the substation. Specifically, the following impacts do not apply: Impact H-1, construction activity could degrade water quality due to erosion and sedimentation; Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Although it is possible that some spills will occur, they will occur within the existing substation footprint. A construction SWPPP for the project will address spill prevention, containment and clean-up, making this impact less than significant (Class III) and no mitigation is required.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment could be released accidentally and contaminate local surface water or downstream groundwater. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This is an existing substation and the Proposed Project would not result in an increased risk of impact from contaminant releases. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. Without mitigation, Impact H-7 would be significant. Mitigation Measure H-7a requires development of a Hazardous Substance

Control and Emergency Response Plan for project operation. With implementation of Mitigation Measure H-7a, Impact H-7 would be reduced to less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

Modifications to Peñasquitos Substation

A number of the potential Water Resources impacts associated with the Proposed Project elsewhere do not apply to the Peñasquitos Substation modifications. This is because all construction would be within the existing disturbed footprint of the substation, there is no groundwater basin at the site, there is no identified flood hazard in this area, and impacts associated with underground portions of the transmission line do not apply to the substation. Specifically, the following impacts do not apply: Impact H-1, construction activity could degrade water quality due to erosion and sedimentation; Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Although it is possible that some spills will occur, they will occur within the existing substation footprint. A construction SWPPP for the project will address spill prevention, containment and clean-up, making this impact less than significant (Class III).

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment could be released accidentally and contaminate local surface water or downstream groundwater. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This is an existing substation, and the Proposed Project would not result in an increased risk of impact from contaminant releases. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. However, Impact H-7 would be significant without mitigation. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With implementation of Mitigation Measure H-7a, Impact H-7 would be reduced to less than significant (Class II)

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

D.12.10 Other System Upgrades – Impacts and Mitigation Measures

Reconductor Sycamore Canyon to Elliot 69 kV Line

A number of the potential Water Resources impacts associated with the Proposed Project elsewhere do not apply to the Sycamore Canyon to Elliot reconductoring. This is because there is no groundwater basin along this line, no new impervious areas would be created, replacement towers would be in the same place as existing towers and would not be in or near watercourses, no facilities would include contaminants, and there is no underground element in this part of the Proposed Project. Specifically, the following impacts do not apply: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

This reconductor will require access road improvements, some grading, and replacement of 11 existing poles. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

WQ-APM-1, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 will ensure this impact is less than significant (Class III) by minimizing disturbance to drainage channels, marking sensitive areas for avoidance and providing employee training, erosion control best management practices identified by the RWQCB, stream crossing construction (which would include access roads) at periods of low flows with site-specific mitigation and restoration plans, compliance with the State of California General Permit for Storm Water Discharge Associated with Construction Activity, and situating access roads away from stream channels. The SWPPP for construction-related erosion control will address erosion and siltation issues.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. A construction SWPPP for the project will address spill prevention, containment and clean-up, making this impact less than significant (Class III).

Modifications to San Luis Rey Substation

A number of the potential Water Resources impacts associated with the Proposed Project elsewhere do not apply to the San Luis Rey Substation modifications. This is because construction would be within the existing disturbed footprint of the substation, there is no groundwater basin at this site, no new impervious areas would be created, there is no identified flood hazard in this area, and there is no underground element in this part of the Proposed Project. Specifically, the following impacts do not apply: Impact H-1, construction activity could degrade water quality due to erosion and sedimentation; Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. A construction SWPPP for the project will address spill prevention, containment and clean-up, making this impact less than significant (Class III).

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment could be released accidentally and contaminate local surface water or downstream groundwater. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This is an existing substation, and the Proposed Project would not result in an increased risk of impact from contaminant releases. Further, substations do not normally contain hazardous material exposed to stormwater. WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. However, without mitigation, Impact H-7 would be significant. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With implementation of Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

Modifications to South Bay Substation

A number of the potential Water Resources impacts associated with the Proposed Project elsewhere do not apply to the South Bay Substation modifications. This is because construction would be within the existing disturbed footprint of the substation, there is no groundwater basin at this site, no new impervious areas would be created, there is no identified flood hazard in this area, and there is no underground

element in this part of the Proposed Project. Specifically, the following impacts do not apply: Impact H-1, construction activity could degrade water quality due to erosion and sedimentation; Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Although it is possible that some spills will occur, they will occur within the existing substation footprint. A construction SWPPP for the project will address spill prevention, containment and clean-up, making this impact less than significant (Class III).

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment could be released accidentally and contaminate local surface water or downstream groundwater. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Since this is an existing substation where the impact already occurs, this impact already occurs at the site. Further, substations do not normally contain hazardous material exposed to stormwater. WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With H-7a in place, Impact H-7 is classified as less than significant (Class II)

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

D.12.11 Future Transmission System Expansion

The Proposed Project would facilitate the possible future construction of additional 230 kV and 500 kV transmission lines. These lines are not proposed at this time, but because the construction of the Proposed Project would include a substation and create new transmission corridors that could be used by these additional circuits, impact analysis is presented in this EIR/EIS.

The 230 kV expansion facilities are addressed in Sections D.12.11.1 and D.12.11.2; the 500 kV expansion facilities are addressed in Sections D.12.11.3 and D.12.11.4.

D.12.11.1 Environmental Setting – 230 kV Future Transmission System Expansion

As described in Section B.2.7, the Central East Substation that would be built as a part of the Proposed Project would accommodate up to six 230 kV circuits. Only two circuits are proposed by SDG&E at this time, but construction of additional 230 kV circuits out of the Central East Substation may be required within the next 10 years. This section considers the impacts of construction and operation of these potential future transmission lines. Based on information provided by SDG&E, there are four substation endpoints and five routes that would be most likely for these future lines; each is addressed below. Figure B-12a illustrates the potential routes of each of the 230 kV transmission lines.

Central East Substation to Sycamore Canyon or Peñasquitos Substation

The new 230 kV line would most likely follow the proposed SRPL project route from the Central East Substation to Sycamore Canyon Substation or Peñasquitos Substation. Therefore, the basic environmental setting for the new 230 kV line would be the same as for the proposed SRPL project.

Central Link

See Section D.12.1 for additional information on the environmental setting of the Central Link. The Central Link climate is characterized by mild, dry summers, and mild, wet winters. Based on records from Julian, December temperatures average 36 to 57 degrees. July temperatures average 53 to 90 degrees. Precipitation is relatively high for Southern California, averaging 26 inches per year (based on records from Julian). Precipitation (Figure D.12-1) is seasonal, with approximately 75% falling between November and March. Snowfall averages 8.2 inches per year.

The topography is hilly. The peak elevation in the Central Link can exceed 4,000 feet. Some streams drain to the Salton Sea, and others drain to the Pacific Ocean. Streams are generally confined between hillsides or incised on relatively narrow floodplain areas. Although there is potential for stream bank erosion, there is less potential for widespread channel changes than could occur in the lower reaches of the desert links.

Streamflow is seasonal and dominated by the winter months, but because of the higher precipitation and greater vegetative cover, streams in the central link are more likely to sustain summer runoff than those of the Imperial Valley and Anza-Borrego Links.

Surface Water. Surface water resources along the Central Link (Table D.12-3) are dry most of the year even though the terrain is more mountainous and more vegetated than the desert links. There are at least 36 identified watercourse crossings associated with the Future Expansion along the proposed SRPL project route along this link. Several of the crossings, as described in Table D.12-3, drain to Lake Henshaw, a water supply reservoir.

Groundwater. Approximately 3 miles of the Central Link (MP 97 to 100) crosses the edge of the Warner Valley Groundwater Basin of the San Diego Hydrologic Subregion. The project crosses streams that drain to the Yaqui Well Area and Santa Maria Valley groundwater basins as indicated in Table D.12-3. The Warner Valley Basin is in alluvium approximately 900 feet thick in the vicinity of Lake Henshaw. Depth to groundwater is generally greater than 15 feet (California Department of Water Resources, 2007). Groundwater in this basin is generally suitable for irrigation and domestic uses except near Warner Hot Springs, where it is rated inferior for irrigation use because of sodium content and for domestic use because of high fluoride concentrations. TDS content averages about 304 mg/L.

Inland Valley Link

The Inland Valley Link Climate is characterized by mild, dry summers and mild, moderately wet winters. December temperatures at Ramona average 37 to 67 degrees. July temperatures average 56 to 90 degrees. Precipitation averages approximately 16 inches per year. Approximately 81% of annual precipitation falls between November and March. Based on records from Ramona, average annual snowfall is zero.

Topography is variable, and characterized by hills bisected by streams in canyons with steep side slopes. Drainage is to the Pacific Ocean. Ground elevations trend lower than in the central link. The town of Ramona, which is crossed by the Inland Valley Link, is at 1,390 feet above sea level. Streams are generally incised and contained by valleys, but there is potential for local stream bank erosion similar to the Central Link.

Surface Water. Surface water resources along the Inland Valley Link are listed in Table D.12-4. There are at least 29 identified watercourses that would need to be crossed by the Future Expansion along the proposed SRPL project route in the Inland Valley Link.

Groundwater. The Inland Valley Link crosses no designated groundwater basin. All of the stream crossings in this link (Table D.12-4) drain to the area of the San Diego River Valley groundwater basin.

Coastal Link

The Coastal Link is similar to the Inland Valley Link in climate and topography. Ground elevations approach sea level toward the west. Precipitation, based on records from Escondido, is approximately the same as for the Inland Valley Link, with a slightly more pronounced concentration of rainfall in the winter months. Approximately 83% of annual precipitation falls between November and March. Topography and stream flow characteristics are similar to the Inland Valley Link, with ground elevations approaching sea level toward the west. Drainage is to the Pacific Ocean.

Surface Water. Surface water resources along this link are listed in Table D.12-5. There are at least 20 watercourse crossings associated with the Future Expansion along the proposed SRPL project route.

Groundwater. The Coastal Link crosses no designated groundwater basins. Two of the streams crossed in this link drain into the Poway Valley groundwater basin.

Central East Substation to Mission Substation

The new 230 kV line would most likely follow the proposed SRPL project route from the Central East Substation to the Sycamore Canyon Substation. Therefore, the environmental setting for the future 230 kV line would be the same as for the proposed SRPL project from these locations. At the Sycamore Canyon Substation, the 230 kV line would turn southwest and would most likely follow an existing 69 kV transmission line corridor that runs between Sycamore Canyon and Elliot Substations. Approximately 6.0 miles of the Grazing Land are associated with the existing 69 kV transmission line corridor between the Sycamore Canyon and Elliot Substations. Installation of a future 230 kV line between the Sycamore Canyon and Elliot Substations would occur entirely on undeveloped land under the jurisdiction of the Department of Defense (i.e., MCAS Miramar). From Elliot Substation, the route would continue southwest for an additional 4.0 miles within the existing 69 kV corridor, through Mission Trails Regional Park, and crossing I-15 to terminate at the existing Mission Substation, located at 9060 Friars Road, which is 0.9 miles north of I-8 and 0.25 miles west of I-805.

From the Sycamore Canyon Substation to the Elliot Mission Substation, the climate and topography is similar to those of the Inland Valley Link and the Coastal Link. Stream flow characteristics are similar to those of the Inland Valley Link and the Coastal Link, with ground elevations approaching sea level toward the west. Drainage is to the Pacific Ocean.

Surface Water. Surface water resources from the Sycamore Canyon Substation to the Mission Substation are listed in Table D.12-11. There are at least 11 identified watercourse crossings associated with Future Expansion after it turns south from the proposed SRPL project route. There are other minor watercourses along this route that have not been identified in Table D.12-11.

~~Table D.12-11. Surface Water Resources – Sycamore Canyon Substation to Mission Substation~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~Project MP CEM 45 to CEM 56.7~~	
~~No Name~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley~~
~~Little Sycamore Canyon~~	~~San Diego River Valley~~
~~Spring Canyon~~	~~San Diego River Valley~~
~~No Name~~	~~San Diego River Valley~~
~~No Name~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~

~~1 Watercourse drains to this groundwater basin. Crossing is outside the basin.~~

Table D.12-11. Surface Water Resources – Sycamore Canyon Substation to Mission Substation

Watercourse	Beneficial Uses	Associated Groundwater Basin
Project MP CEM 45 to CEM 56.7		
Unnamed	Trib. to West Sycamore Canyon; AGR, IND, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to West Sycamore Canyon; AGR, IND, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to West Sycamore Canyon; AGR, IND, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to Sycamore Canyon; AGR, IND, REC1, REC2, WARM, WILD, RARE	San Diego River Valley*
Unnamed	Trib. to Sycamore Canyon; AGR, IND, REC1, REC2, WARM, WILD, RARE	San Diego River Valley*
Little Sycamore Canyon	AGR, IND, REC1, REC2, WARM, WILD	San Diego River Valley*
Spring Canyon	AGR, IND, REC1, REC2, WARM, WILD, RARE	San Diego River Valley*
Unnamed	Trib. to San Diego River; AGR, IND, REC1, REC2, BIOL, WARM, WILD, RARE	San Diego River Valley*
Unnamed	Trib. to San Diego River; AGR, IND, REC1, REC2, BIOL, WARM, WILD, RARE	San Diego River Valley*
Unnamed	Trib. to San Diego River; AGR, IND, REC1, REC2, BIOL, WARM, WILD, RARE	San Diego River Valley*
Unnamed	Trib. to San Diego River; AGR, IND, REC1, REC2, BIOL, WARM, WILD, RARE	San Diego River Valley*

*Watercourse drains to this groundwater basin. Crossing is outside the basin.

Groundwater. This section of the route south from the Sycamore Canyon Substation drains to the San Diego River Valley groundwater basin. There are a few watercourse crossings that are also above the San Diego River Valley groundwater basin (Table D.12-11). The depth to groundwater in this basin could be as shallow as 15 feet. The route for this future expansion is parallel to the San Diego River from CEM-50 to the end at CEM 56.7.

Central East Substation to Los Coches Substation

The future 230 kV line would most likely follow the proposed SRPL project route from the Central East Substation to one mile south of the Creelman Substation (MP 122.2) in the Town of Ramona. Therefore, the environmental setting for the future 230 kV transmission line would be the same as for the proposed SRPL project from these locations. At MP 122.2, the future expansion 230 kV line could turn south following the existing Creelman–Lakeside 69 kV corridor through unincorporated San Diego County and then 1.6 miles through largely hilly open space on the Barona Reservation east of the San Vicente

Reservoir and west of the Barona Creek Golf Club, the Barona Valley Resort and Casino, and Oak Oasis Open Space Preserve. The route would then pass through or adjacent to Louis A. Stelzer County Park, cross the San Diego River and terminate at the existing Los Coches Substation 0.3 miles northwest of Lake Jennings near Lake Jennings County Park and the community of Lakeside.

From one mile south of the Creelman Substation to the Los Coches Substation, the climate and topography is similar to those of the Inland Valley Link and the Coastal Link. Stream flow characteristics are similar to those of the Inland Valley Link and the Coastal Link, with ground elevations approaching sea level toward the west. Drainage is to the Pacific Ocean.

~~Table D.12-12. Surface Water Resources – Creelman Substation to Los Coches Substation~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~Project MP CEL 29.4 to CEL 40.3~~	
~~No Name~~	~~San Diego River Valley[1]~~
~~San Vicente Creek~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~Longs Gulch~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~Padre Creek~~	~~San Diego River Valley[1]~~
~~No Name~~	~~San Diego River Valley[1]~~
~~San Diego River~~	~~San Diego River Valley~~

~~1 Watercourse drains to this groundwater basin. Crossing is outside the basin.~~

Surface Water. Surface water resources from the Creelman Substation to the Los Coches Substation are listed in Table D.12-12. There are at least 10 identified watercourse crossings associated with the Future Expansion after it turns south from the proposed SRPL project route. There are other minor watercourses along this route that have not been identified in Table D.12-12.

Table D.12-12. Surface Water Resources – Creelman Substation to Los Coches Substation

Watercourse	Beneficial Uses	Associated Groundwater Basin
Project MP CEL 29.4 to CEL 40.3		
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
San Vicente Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Longs Gulch	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to Padre Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Padre Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to Padre Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
San Diego River	IND, REC1, REC2, WARM, WILD, RARE	San Diego River Valley*

*Watercourse drains to this groundwater basin. Crossing is outside the basin.

Groundwater. This section of the route south from the Creelman Substation drains to the San Diego River Valley groundwater basin. San Vicente Creek, Longs Gulch, and Padre Creek drain to San Vicente Reservoir en route to the San Diego Aqueduct or the San Diego River Valley groundwater basin. This Future Expansion crosses these watercourses within a few miles from where they enter the reservoir. There is one watercourse crossing that is also above the San Diego River Valley groundwater basin (Table D.12-12). The depth to groundwater may be as shallow as 5 feet near San Vicente Reservoir (California Department of Water Resources, 2007). The route ends near the San Diego River above the San Diego River groundwater basin. The groundwater depth at that location is not known.

Central East Substation to Escondido Substation

Northern Route. From the proposed Central East Substation, the northern link of the future 230 kV transmission line route would travel west through Vista Irrigation District land paralleling the proposed SRPL route for approximately 6.6 miles to its intersection with SR79. At SR79 the line would diverge from the proposed SRPL route and would head north parallel to SR79 for approximately 1.2 miles to the intersection of Highway S2 with SR79 at the existing Warner Substation. From there the route would parallel the existing 69 kV corridor west across open space owned by Vista Irrigation District north of Lake Henshaw and then it would turn southwest, following the northwest edge of the lake to SR76.

At SR76 the route would turn west-northwest paralleling SR76 for 13.3 miles following the existing Warners-Rincon 69 kV transmission corridor across and/or bordering parcels of the Cleveland National Forest for approximately 4 miles and across La Jolla Reservation for 6 miles, crossing Cedar Creek, Plaisted Creek and Potrero Creek, and then into to Rincon Substation, which is just north of the Rincon Reservation at the Highway S6 intersection with SR76. The hilly route along SR76 is primarily agricultural/open space with scattered rural residences.

At Rincon Substation the route would diverge from SR76 and would follow the existing Rincon-Escondido 69 kV corridor, generally parallel to Highway S6 south, crossing Potrero Creek, San Luis Rey River and a tributary to Paradise Creek, through the Rincon Reservation for 3 miles passing through some medium-density single-family residential and commercial land uses. South of the Rincon Reservation, the route would turn west in the Valley Center Substation area generally paralleling Highway S6, passing on the west side of Hellhole Canyon County Open Space Preserve (approximately 0.30 miles from the ROW), and then would turn south on the east side of Highway S6 for 1.6 miles before turning southwest, crossing Highway S6, and entering the City of Escondido after approximately 0.75 miles. The new line could run adjacent to or cross Daley Ranch near Escondido. In the City of Escondido, the route would turn south and then southwest for approximately 8 miles following the existing 69 kV corridor into Escondido Substation.

Table D.12-13. Surface Water Resources – Central East Substation to Escondido Substation Expansion Route

Watercourse	Associated Groundwater Basin
Project MP CEE 6.6 to CEE 29	
No Name	Warner Valley
No Name	Warner Valley
No Name	Warner Valley
No Name	Warner Valley
No Name	Warner Valley
Buena Vista Creek	Warner Valley
No Name	San Luis Rey Valley[1]
San Luis Rey River	San Luis Rey Valley[1]
West Fork	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
San Luis Rey River	San Luis Rey Valley[1]
Escondido Penstock Siphon Canal	None
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
Cedar Creek	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
Patrero Creek	San Luis Rey Valley[1]
Plaisted Creek	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
Yuima Creek	San Luis Rey Valley[1]
Yumia Creek	San Luis Rey Valley[1]
Patrero Creek	San Luis Rey Valley[1]
Project MP CEE 29 to CEE 47.1	
San Luis Rey River	San Luis Rey Valley
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Namel	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	San Luis Rey Valley[1]
No Name	None
No Name	None
No Name	None
Canal near Dixon Lake	None
San Diego Aqueduct	None
No Name	None

1 Watercourse drains to this groundwater basin. Crossing is outside the basin.

From the one mile south of the Central East Substation to the Escondido Substation, the climate and topography is similar to those of the Central Link, Inland Valley Link, and the Coastal Link. Stream flow characteristics are similar to those of the Central Link, Inland Valley Link, and the Coastal Link with ground elevations approaching sea level toward the west. Drainage is to the Pacific Ocean.

Surface Water. Surface water resources from where the Future Expansion route departs from the proposed SRPL route are listed in Table D.12-13. There are at least 49 identified watercourse crossings associated with this portion of the route. There are other minor watercourses along this route that have not been identified in Table D.12-13.

Table D.12-13. Surface Water Resources – Central East Substation to Escondido Substation Expansion Route

Watercourse	Beneficial Uses	Associated Groundwater Basin
Project MP CEE 6.6 to CEE 29		
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Warner Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Warner Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Warner Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Warner Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Warner Valley
Buena Vista Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Warner Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	San Luis Rey Valley*
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
West Fork	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD, SPWN	San Luis Rey Valley*
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	San Luis Rey Valley*
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Escondido Penstock Siphon Canal	Trib. to Lake Wohlford; MUN, AGR, REC1, REC2, WARM, COLD, WILD, POW	None
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Cedar Creek	MUN, AGR, IND, POW, REC1, REC2 WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Potrero Creek	MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Plaisted Creek	MUN, AGR, IND, POW, REC1, REC2, BIOL, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to Potrero; MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*

Table D.12-13. Surface Water Resources – Central East Substation to Escondido Substation Expansion Route

Watercourse	Beneficial Uses	Associated Groundwater Basin
Yuima Creek	MUN, AGR, IND, POW, REC1, REC2, BIOL, WARM, COLD, WILD	San Luis Rey Valley*
Yuima Creek	MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Potrero Creek	MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Project MP CEE 29 to CEE 47.1		
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley*
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	None
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	None
Unnamed	Trib. to Dixon Lake; MUN, AGR, REC1, REC2, WARM, COLD, WILD	None
Siphon Vista Canal	Trib. to Agua Hedionda Creek; MUN, AGR, IND, REC1. REC2, WARM, WILD	None
San Diego Aqueduct	Trib. to San Vicente Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None
Unnamed	Trib. to Escondido Creek; MUN, AGR, REC1, REC2, WARM, COLD, WILD	None

*Watercourse drains to this groundwater basin. Crossing is outside the basin.

Groundwater. This section of the route after the departure from the proposed SRPL route drains to the Warner Valley and San Luis Rey Valley groundwater basins. Buena Vista Creek, San Luis Rey River, and West Fork all drain to Lake Henshaw en route to San Luis Rey Valley groundwater basin. This Future Expansion crosses these watercourses within a few miles from where they enter the reservoir. Several watercourse crossings are also above a groundwater basin (Table D.12-13). The depth to groundwater in the Warner Valley groundwater basin is generally greater than 15 feet (California Department of Water Resources, 2007). The depth to groundwater in the San Luis Rey Valley groundwater basin is not known.

Southern Route. From Escondido Substation, the southern link of the future 230 kV transmission line route would travel south to Chicarita Substation. This portion of the route would begin just south of State Highway 78, and just west of Interstate 15 and the City of Escondido. The route heads south through mostly open space, as well as some low-density housing and agricultural fields. After crossing Escondido Creek, the route continues south toward Lake Hodges and the town of Del Dios. The line stays just to the west of the town of Del Dios, paralleling Del Dios road for approximately one mile. The Route then follows the west shore of Lake Hodges before turning west and crossing San Dieguito River. After crossing the river, the route cuts back sharply to the east and then heads south again. The line continues south through open space, crosses Lusardi Creek, and then crosses the Second San Diego Aqueduct just west of Black Mountain before ending at Chicarita Substation near State Highway 56.

Drainage along this link is mainly to the west, and eventually to the Pacific Ocean. The small, unnamed streams that drain to Lake Hodges eventually flow to the Pacific Ocean via the San Dieguito River. The topography along the southern link between Escondido Substation and Chicarita Substation is similar to that of the Coastal Link, with gentle to moderately sloped hillsides traversed by canyons. Steeper slopes are found near the Lake Hodges area. Also similar to the Coastal Link, the majority of the precipitation falls between November and March.

Surface Water. Surface water resources from Escondido Substation to Chicarita Substation are listed from north to south in Table D.12-14. There are 18 identified watercourse crossings associated with this portion of the route. There are other minor watercourses along this route that have not been identified in Table D.12-14.

~~Table D.12-14. Surface Water Resources – Escondido Substation to Chicarita Substation Expansion Route~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~Project MP ECH 66 to ECH 51.8~~	
~~None~~	~~Escondido Valley~~
~~Escondido Creek~~	~~San Elijo Valley~~
~~No Name~~	~~Lake Hodges~~
~~No Name~~	~~Lake Hodges~~
~~No Name~~	~~Lake Hodges~~
~~San Dieguito River~~	~~San Dieguito Creek~~
~~No Name~~	~~San Dieguito Creek~~
~~No Name~~	~~San Dieguito Creek~~
~~No Name~~	~~San Dieguito Creek~~
~~No Name~~	~~San Dieguito Creek~~
~~No Name~~	~~San Dieguito Creek~~
~~Lusardi Creek~~	~~San Dieguito Creek~~
~~No Name~~	~~San Dieguito Creek~~
~~Second San Diego Aqueduct~~	~~None~~
~~Second San Diego Aqueduct~~	~~None~~
~~No Name~~	~~None~~
~~No Name~~	~~None~~
~~No Name~~	~~None~~
~~No Name~~	~~None~~

Table D.12-14. Surface Water Resources – Escondido Substation to Chicarita Substation Expansion Route

Watercourse	Beneficial Uses	Associated Groundwater Basin
Project MP ECH 66 to ECH 51.8		
Unnamed	Trib. to Escondido Creek; MUN, AGR, REC1, REC2, WARM, COLD, WILD	Escondido Valley
Escondido Creek	MUN, AGR, REC1, REC2, WARM, COLD, WILD	San Elijo Valley
Unnamed	Trib. to Lake Hodges; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD, RARE	Lake Hodges
Unnamed	Trib. to Lake Hodges; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD, RARE	Lake Hodges
Unnamed	Trib. to Lake Hodges; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD, RARE	Lake Hodges
San Dieguito River	MUN, AGR, IND, PROC, REC1, REC2, BIOL, WARM, COLD, WILD, RARE	San Dieguito Creek
Unnamed	Trib. to San Dieguito River; MUN, AGR, IND, PROC, REC1, REC2, BIOL, WARM, COLD, WILD, RARE	San Dieguito Creek
Unnamed	Trib. to San Dieguito River; MUN, AGR, IND, PROC, REC1, REC2, BIOL, WARM, COLD, WILD, RARE	San Dieguito Creek
Unnamed	Trib. to San Dieguito River; MUN, AGR, IND, PROC, REC1, REC2, BIOL, WARM, COLD, WILD, RARE	San Dieguito Creek
Unnamed	Trib. to San Dieguito River; MUN, AGR, IND, PROC, REC1, REC2, BIOL, WARM, COLD, WILD, RARE	San Dieguito Creek
Unnamed	Trib. to Lusardi Creek; REC1, REC2, WARM, WILD	San Dieguito Creek
Lusardi Creek	REC1, REC2, WARM, WILD	San Dieguito Creek
Unnamed	Trib. to Lusardi Creek; REC1, REC2, WARM, WILD	San Dieguito Creek
Second San Diego Aqueduct	Trib. to Lower Otay Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None
Second San Diego Aqueduct	Trib. to Lower Otay Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None
Unnamed	Trib. to McGonigle Canyon; AGR, IND, REC2, WARM, WILD	None
Unnamed	Trib. to Los Peñasquitos Canyon; AGR, IND, REC2, BIOL, WARM, WILD	None
Unnamed	Trib. to Los Peñasquitos Canyon; AGR, IND, REC2, BIOL, WARM, WILD	None
Unnamed	Trib. to Los Peñasquitos Canyon; AGR, IND, REC2, BIOL, WARM, WILD	None

Groundwater. This section of the route from Escondido Substation to Chicarita Substation drains to the San Elijo Valley and San Dieguito Creek groundwater basins. Both the San Dieguito River and Lusardi Creek drain to the San Dieguito Creek groundwater basin. Several unnamed streams drain to Lake Hodges, which eventually empties into the San Dieguito River and then the San Dieguito Creek groundwater basin. Although most of the surface water crossings drain to a groundwater basin, none of them are located within a groundwater basin. The line does pass over Escondido Valley groundwater basin just south of Escondido Substation, but there is no associated surface water crossing at this point. The San Dieguito Creek groundwater basin is an alluvial basin that is recharged mainly by the San Dieguito River. Depth to groundwater is unknown. The San Elijo Valley basin is recharged mainly by Escondido creek. Depth to groundwater is unknown.

D.12.11.2 Environmental Impacts – 230 kV Future Transmission System Expansion

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of the overhead transmission line towers, substations, pull stations, and access roads, would require excavation and grading for roads and towers. Construction of the underground transmission line would require trench excavation and grading for access roads. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams.

Degradation of water quality due to erosion and sedimentation is considered mitigable to less than significant levels (Class II), with adoption of mitigation measures. These measures include Mitigation Measures H-1c through H-1i below, which implement the following requirements: minimize disturbance to waterways to the extent feasible, placement of structures shall avoid watercourses to the extent feasible, establishment of exclusion zones along waterways, and construction of waterway crossings during low flow periods. A Stormwater Pollution Prevention Plan for construction would be required by the RWQCB. Mitigations Measure H-1a (Prepare Substation Grading and Drainage Plan; construct during the dry season) could also apply. With implementation of Mitigation Measures H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, and H-1i in place, Impact H-1 would be less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a **Prepare Substation Grading and Drainage Plan; construct during the dry season.**

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives related to oil and grease, toxicity, and chemical pollutants. This impact would apply to all watercourses along the route (Table D.12-1).

Degradation of water quality through the spill of potentially harmful materials is mitigable to less than significant levels (Class II). Mitigation is required, which include: (1) The prohibition of storage of fuels and hazardous materials within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells; (2) prohibition of disposal of hazardous materials onto the ground, underlying groundwater, and any surface water; (3) removal of potentially hazardous materials to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials; and (4) in the event of a release of hazardous materials, the release will be promptly cleaned up in accordance with applicable regulations. Mitigation Measure P-1a (Implement Environmental Monitoring Plan) and Mitigation Measure P-1b (Maintain emergency spill supplies and equipment) should also be implemented. The construction SWPPP will address best management practices for material spills. With Mitigation Measures P-1a, P-1b, H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, H-1i, H-2a, H-2b, H-2d, and H-2c in place, Impact H-2 would be less than significant (Class II).

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-2b **No storage of fuels and hazardous materials near sensitive water resources.** [WQ-APM-9]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

H-2d **Maintain vehicles and equipment.**

P-1a **Implement Environmental Monitoring Plan.**

P-1b **Maintain emergency spill supplies and equipment.**

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives related to chemical pollutants, oil and grease, and toxic pollutants. This impact is unlikely to occur primarily for the reason that most towers are expected to be on high ground with relation to groundwater, and groundwater will be crossed by only a small portion of the expansion lines. However, a few towers could be located in areas of shallow groundwater.

Implementation of mitigation would be required, including (1) Proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) ensure that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) determine the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. With Mitigation Measures H-1c, H-2a and H-3a in place, Impact H-3 is less than significant (Class II).

Mitigation Measure for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-3a **Detect and avoid groundwater with project excavations.** [WQ-APM-11]

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II)

Dewatering for tower construction in the groundwater basins traversed by the Future Expansion projects could result in a local and temporary drawdown of groundwater levels, temporarily reducing the yield of nearby water supply wells. Groundwater is unlikely to be encountered by tower excavation. In addition, blasting or drilling for tower foundations could reduce water flows in wells and springs. Mitigation Measures H-4a and H-4b regarding identification of wells and provision of alternate water supplies during the period of depletion and avoiding blasting where wells and springs could be affected would ensure less than significant (Class II) impact.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4a **Avoid using source water and provide alternative sources where avoidance is not possible.** [WQ-APM-6]

H-4b **Avoid blasting where damage to groundwater wells or springs could occur.**

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the Future Expansion projects, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III) and no mitigation is required.

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream

H-5a **Install substation runoff control.**

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Encroachment of a project structure into a flow path or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. This impact is likely to occur only where power poles or other permanent project features are constructed in or closely adjacent to a watercourse.

While specific structure locations are not available for these future transmission lines, the potential for Future Expansion structures to result in flooding or erosion is believed to be mitigable to less than significant levels (Class II). With Mitigation Measures H-1c and H-6a in place, Impact H-6 is less than significant (Class II).

Mitigation Measures for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-6a **Scour protection to include avoidance of bank erosion and effects to adjacent property.**

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

During flow events the stream channel bed can become scoured to the point where objects buried beneath it can be exposed. The depth of scour is generally greater with larger magnitude flood events. Exposure of the buried line could result in damage to the line or in damage to adjacent property as the exposed line exacerbates the potential for local scour. At places where the buried power line crosses below stream beds, the burial depth should be great enough to protect against scour.

The potential for Impact H-8 of the Future Expansion would be mitigable to less than significant levels (Class II). Mitigation Measure H-8a, requiring that the power line be buried below the 100-year scour depth, would apply.

Mitigation Measures for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a **Bury power line below 100-year scour depth.**

D.12.11.3 Environmental Setting – 500 kV Future Transmission System Expansion

As described in Section B.7.2 and illustrated in Figure B-12b, the potential Future 500 kV Circuit would connect the proposed Central East Substation to the Southern California Edison (SCE) transmission system at a new substation north of Interstate 15 (I-15), about 20 miles west of SCE's Valley Substation.

The 500 kV Future Transmission System Expansion route departs from the Proposed Project route just southeast of Warners Substation, and heads northwest, generally following the Cleveland National Forest. From Warners Substation, the route heads west to Rincon Substation and then to Lilac Substation before turning due north. The route continues north until the San Diego-Riverside County border, where it heads due west until reaching Camp Pendleton Marine Corps Base. From there, the route heads mainly north along the edge of the Cleveland National Forest. The line crosses into Riverside County and continues north before terminating at a future switching station.

Surface Water. Surface water resources from just south of Warners Substation to the future switching station are listed from south to north in Table D.12-15. There are 99 identified watercourse crossings associated with this route. There are other minor watercourses along this route that have not been identified in Table D.12-15.

Groundwater. Several groundwater basins are associated with the 500 kV Future Transmission System Expansion route. In most cases, the surface water crossing is not directly over a groundwater basin, but drains to the named associated groundwater basin in Table 12-15. The surface waterbodies crossed by this route drain to or overlie six groundwater basins, including: Warner Valley, San Luis Rey Valley, Santa Margarita Valley, San Mateo Valley, San Juan Valley, and Elsinore. Most of these groundwater basins are alluvial and are fed by the river with which they share a name.

Table D.12-15. Surface Water Resources – 500 kV Future Transmission System Expansion

Watercourse	Associated Groundwater Basin
Project MP WFS 0.0 to WFS 91.1	
No Name	Warner Valley
No Name	Warner Valley
San Ysidro Creek	Warner Valley
San Ysidro Creek	Warner Valley
San Ysidro Creek	Warner Valley
San Ysidro Creek	Warner Valley
No Name	Warner Valley
San Luis Rey River	Lake Henshaw
No Name	Lake Henshaw
San Luis Rey River	San Luis Rey Valley
San Luis Rey River	San Luis Rey Valley
No Name	San Luis Rey Valley
Wigham Creek	San Luis Rey Valley
No Name	San Luis Rey Valley
No Name	San Luis Rey Valley
No Name	San Luis Rey Valley
San Luis Rey River	San Luis Rey Valley
San Luis Rey River	San Luis Rey Valley
Cedar Creek	San Luis Rey Valley
No Name	San Luis Rey Valley
No Name	San Luis Rey Valley
No Name	San Luis Rey Valley
No Name	San Luis Rey Valley
Potrero Creek	San Luis Rey Valley
Plaisted Creek	San Luis Rey Valley
No Name	San Luis Rey Valley
Yuima Creek	San Luis Rey Valley
San Luis Rey River	San Luis Rey Valley
Keys Creek	San Luis Rey Valley
No Name	San Luis Rey Valley
San Diego Aqueduct	None
No Name	San Luis Rey Valley
San Diego Aqueduct	None
Keys Creek	San Luis Rey Valley
No Name	San Luis Rey Valley
San Diego Aqueduct	None
No Name	San Luis Rey Valley
San Diego Aqueduct	San Luis Rey Valley
Couser Canyon Stream	San Luis Rey Valley
No Name	San Luis Rey Valley
No Name	San Luis Rey Valley
San Luis Rey River	San Luis Rey Valley
Gomez Creek	San Luis Rey Valley
Gomez Creek	San Luis Rey Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley

Watercourse	Associated Groundwater Basin
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
San Diego Aqueduct	None
San Diego Aqueduct	None
Rainbow Creek	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
Santa Margarita River	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
Sandia Canyon	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
De Luz Creek	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
No Name	Santa Margarita Valley
Fern Creek	Santa Margarita Valley
No Name	Santa Margarita Valley
San Mateo Creek	San Mateo Valley
No Name	San Mateo Valley
No Name	San Mateo Valley
Tenaja Canyon Creek	San Mateo Valley
No Name	San Mateo Valley
No Name	San Mateo Valley
No Name	San Mateo Valley
Los Alamos Canyon Creek	San Mateo Valley
No Name	San Mateo Valley
No Name	San Mateo Valley
No Name	San Mateo Valley
No Name	Elsinore
Morrell Canyon	San Juan Valley
Morrell Canyon	San Juan Valley
Docker Canyon	San Juan Valley
No Name	Elsinore
No Name	Elsinore
No Name	Elsinore
No Name	Elsinore
No Name	Elsinore
No Name	Elsinore
No Name	Elsinore
No Name	Elsinore
No Name	Elsinore
No Name	Elsinore
Temescal Wash	Elsinore
No Name	Elsinore

Table D.12-15. Surface Water Resources – 500 kV Future Transmission System Expansion

Watercourse	Beneficial Uses	Associated Groundwater Basin
Project MP WFS 0.0 to WFS 91.1		
Unnamed	Trib. to San Ysidro Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley
Unnamed	Trib. to San Ysidro Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley
San Ysidro Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley
San Ysidro Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley
San Ysidro Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley
San Ysidro Creek	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Warner Valley
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Lake Henshaw
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	Lake Henshaw
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	San Luis Rey Valley
Wigham Creek	MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	San Luis Rey Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	San Luis Rey Valley
Unnamed	Trib. to Lake Henshaw; MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, WILD, RARE, POW	San Luis Rey Valley
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Cedar Creek	MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Potrero Creek	MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Plaisted Creek	MUN, AGR, IND, POW, REC1, REC2, BIOL, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to Potrero Creek; MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Yuima Creek	MUN, AGR, IND, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Keys Creek	AGR, IND, REC1, REC2, WARM, WILD	San Luis Rey Valley
Unnamed	Trib. to Keys Creek; AGR, IND, REC1, REC2, WARM, WILD	San Luis Rey Valley
San Diego Aqueduct	Trib. to San Vicente Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None

Table D.12-15. Surface Water Resources – 500 kV Future Transmission System Expansion

Watercourse	Beneficial Uses	Associated Groundwater Basin
Unnamed	Trib. to Keys Creek; AGR, IND, REC1, REC2, WARM, WILD	San Luis Rey Valley
San Diego Aqueduct	Trib. to San Vicente Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None
Keys Creek	AGR, IND, REC1, REC2, WARM, WILD	San Luis Rey Valley
Unnamed	Trib. to Keys Creek; AGR, IND, REC1, REC2, WARM, WILD	San Luis Rey Valley
San Diego Aqueduct	Trib. to San Vicente Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None
Unnamed	Trib. to Keys Creek; AGR, IND, REC1, REC2, WARM, WILD	San Luis Rey Valley
San Diego Aqueduct	Trib. to San Vicente Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Couser Canyon Stream	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to Couser; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to San Luis Rey River; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
San Luis Rey River	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Gomez Creek	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Gomez Creek	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD	San Luis Rey Valley
Unnamed	Trib. to Gomez Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD	Santa Margarita Valley
Unnamed	Trib. to Gomez Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD	Santa Margarita Valley
Unnamed	Trib. to Gomez Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD	Santa Margarita Valley
Unnamed	Trib. to Gomez Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD	Santa Margarita Valley
Unnamed	Trib. to Rainbow Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Margarita Valley
Unnamed	Trib. to Rainbow Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Margarita Valley
Unnamed	Trib. to Rainbow Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Margarita Valley
San Diego Aqueduct	Trib. to San Vicente Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None
San Diego Aqueduct	Trib. to San Vicente Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None
Rainbow Creek	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Margarita Valley
Unnamed	Trib. to Santa Margarita River; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	Santa Margarita Valley
Unnamed	Trib. to Santa Margarita River; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	Santa Margarita Valley
Unnamed	Trib. to Santa Margarita River; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	Santa Margarita Valley
Santa Margarita River	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	Santa Margarita Valley
Unnamed	Trib. to Santa Margarita River; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	Santa Margarita Valley
Unnamed	Trib. to Santa Margarita River; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	Santa Margarita Valley
Unnamed	Trib. to Santa Margarita River; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	Santa Margarita Valley
Sandia Canyon	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Margarita Valley

Table D.12-15. Surface Water Resources – 500 kV Future Transmission System Expansion

Watercourse	Beneficial Uses	Associated Groundwater Basin
Unnamed	Trib. to Sandia Canyon; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Margarita Valley
Unnamed	Trib. to Sandia Canyon; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Margarita Valley
Unnamed	Trib. to De Luz Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE, SPWN	Santa Margarita Valley
Unnamed	Trib. to De Luz Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE, SPWN	Santa Margarita Valley
De Luz Creek	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE, SPWN	Santa Margarita Valley
Unnamed	Trib. to De Luz Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE, SPWN	Santa Margarita Valley
Unnamed	Trib. to De Luz Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE, SPWN	Santa Margarita Valley
Unnamed	Trib. to De Luz Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE, SPWN	Santa Margarita Valley
Fern Creek	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, SPWN	Santa Margarita Valley
Unnamed	Trib. to De Luz Creek; MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE, SPWN	Santa Margarita Valley
San Mateo Creek	REC2, WARM, COLD, WILD, RARE, SPWN	San Mateo Valley
Unnamed	Trib. to San Mateo Creek; REC2, WARM, COLD, WILD, RARE, SPWN	San Mateo Valley
Unnamed	Trib. to San Mateo Creek; REC2, WARM, COLD, WILD, RARE, SPWN	San Mateo Valley
Tenaja Canyon Creek	REC2, WARM, COLD, WILD, SPWN	San Mateo Valley
Unnamed	Trib. to Tenaja Canyon Creek; REC2, WARM, COLD, WILD, SPWN	San Mateo Valley
Unnamed	Trib. to Tenaja Canyon Creek; REC2, WARM, COLD, WILD, SPWN	San Mateo Valley
Unnamed	Trib. to Tenaja Canyon Creek; REC2, WARM, COLD, WILD, SPWN	San Mateo Valley
Los Alamos Canyon Creek	REC2, WARM, COLD, WILD, SPWN	San Mateo Valley
Unnamed	Trib. to Los Alamos Creek; REC2, WARM, COLD, WILD, SPWN	San Mateo Valley
Unnamed	Trib. to Los Alamos Creek; REC2, WARM, COLD, WILD, SPWN	San Mateo Valley
Unnamed	Trib. to Los Alamos Creek; REC2, WARM, COLD, WILD, SPWN	San Mateo Valley
Unnamed	Trib. to Los Alamos Creek; REC2, WARM, COLD, WILD, SPWN	Elsinore
Morrell Canyon	AGR, IND, REC1, REC2, WARM, COLD, WILD	San Juan Valley
Morrell Canyon	AGR, IND, REC1, REC2, WARM, COLD, WILD	San Juan Valley
Decker Canyon	AGR, IND, REC1, REC2, WARM, COLD, WILD	San Juan Valley
Unnamed	Trib. to Decker Canyon; AGR, IND, REC1, REC2, WARM, COLD, WILD	Elsinore
Unnamed	Trib. to Decker Canyon; AGR, IND, REC1, REC2, WARM, COLD, WILD	Elsinore
Unnamed	Trib. to Elsinore Lake; REC1, REC2, WARM, WILD	Elsinore
Unnamed	Trib. to Elsinore Lake; REC1, REC2, WARM, WILD	Elsinore
Unnamed	Trib. to Elsinore Lake; REC1, REC2, WARM, WILD	Elsinore
Unnamed	Trib. to Temescal Wash; MUN, AGR, IND, PROC	Elsinore
Unnamed	Trib. to Temescal Wash; MUN, AGR, IND, PROC	Elsinore
Unnamed	Trib. to Temescal Wash; MUN, AGR, IND, PROC	Elsinore
Unnamed	Trib. to Temescal Wash; MUN, AGR, IND, PROC	Elsinore
Unnamed	Trib. to Temescal Wash; MUN, AGR, IND, PROC	Elsinore
Temescal Wash	MUN, AGR, IND, PROC	Elsinore
Unnamed	Trib. to Temescal Wash; MUN, AGR, IND, PROC	Elsinore

D.12.11.4 Environmental Impacts – 500 kV Future Transmission System Expansion

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of the overhead transmission line towers, substations, pull stations, and access roads, would require excavation and grading for roads and towers. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

Degradation of water quality due to erosion and sedimentation is considered mitigable to less than significant levels (Class II), with adoption of mitigation measures. These measures include Mitigation Measures H-1c through H-1i below, which implement the following requirements: minimize disturbance to waterways to the extent feasible, placement of structures shall avoid watercourses to the extent feasible, establishment of exclusion zones along waterways, and construction of waterway crossings during low flow periods. A Storm Water Pollution Prevention Plan for construction would be required by the RWQCB. Mitigations Measure H-1a (Prepare Substation Grading and Drainage Plan; construct during the dry season) could also apply. With implementation of Mitigation Measures H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, and H-1i in place, Impact H-1 would be less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a **Prepare Substation Grading and Drainage Plan; construct during the dry season.**

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This impact would apply to all watercourses along the route (Table D.12-15).

Degradation of water quality through the spill of potentially harmful materials is mitigable to less than significant levels (Class II). Mitigation is required, which include: (1) The prohibition of storage of fuels and hazardous materials within 200 feet of groundwater supply wells and within 400 feet of community

or municipal wells; (2) prohibition of disposal of hazardous materials onto the ground, underlying groundwater, and any surface water; (3) removal of potentially hazardous materials to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials; and (4) in the event of a release of hazardous materials, the release will be promptly cleaned up in accordance with applicable regulations. Mitigation Measure P-1a (Implement Environmental Monitoring Plan) and Mitigation Measure P-1b (Maintain emergency spill supplies and equipment) should be implemented. The construction SWPPP will address best management practices for material spills. With Mitigation Measures P-1a, P-1b, H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, H-1i, H-2a, H-2b, H-2d, and H-2c in place, Impact H-2 would be less than significant (Class II).

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-2b **No storage of fuels and hazardous materials near sensitive water resources.** [WQ-APM-9]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

H-2d **Maintain vehicles and equipment.**

P-1a **Implement Environmental Monitoring Plan.**

P-1b **Maintain emergency spill supplies and equipment.**

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants.

This impact is unlikely to occur primarily for the reason that most towers are expected to be on high ground with relation to groundwater, and groundwater will be crossed by only a small portion of the expansion lines. However, a few towers could be located in areas of shallow groundwater.

Implementation of mitigation would be required, including (1) Proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) ensure that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) determine the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. With Mitigation Measures H-1c, H-2a and H-3a in place, Impact H-3 is less than significant (Class II).

Mitigation Measure for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-3a **Detect and avoid groundwater with project excavations.** [WQ-APM-11]

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the Future Expansion projects, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III) and no mitigation is required.

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream

H-5a **Install substation runoff control.**

D.12.12 Connected Actions and Indirect Effects

Section B.6 describes the other projects that have been found to be related to the Sunrise Powerlink Project. They fall into two categories:

- **Connected Actions**. The three ~~four~~ projects found to be connected to the Sunrise Powerlink Project are the Stirling Energy Systems solar facility, ~~two components of the IID 230 kV transmission system upgrades,~~ the Esmeralda–San Felipe Geothermal Project, and the Jacumba Substation (as a component of the Sempra Rumorosa Wind Energy Project). The first two ~~ese~~ projects are addressed in Sections D.12.12.1 ~~through~~ and D.12.12.2~~4~~. The Draft EIR/EIS also included analysis of two components of the IID 230 kV transmission system upgrades, but this is no longer considered to be a connected action, based on comments from IID. Therefore, this analysis has been deleted and is struck out in this section.

  The Jacumba Substation, addressed in Section D.12.12.3, was modified and expanded in the Recirculated Draft EIR/Supplemental Draft EIR, superseding the original analysis. Therefore, the original analysis from the Draft EIR/EIS has been deleted and is struck out in this section. The replacement analysis in Section 2 of the Recirculated Draft EIR/Supplemental Draft EIS includes consideration of the larger, relocated Jacumba Substation as well as other transmission and substation components that would be required to interconnect the Sempra Rumorosa Wind Energy Project (RWEP) to the SDG&E transmission system.

- **Indirect Effects**. One project, the SCE La Rumorosa Wind Project, was analyzed in the Draft EIR/EIS. This analysis was modified and expanded in the Recirculated Draft EIR/Supplemental Draft EIR, superseding the analysis presented in the Draft EIR/EIS. Therefore, the original analysis from the Draft EIR/EIS has been deleted and is struck out in this section.~~would create effects as a result of~~

~~the construction and operation of the Sunrise Powerlink Project. That project is addressed in Section D.12.12.5.~~

D.12.12.1 Stirling Energy Systems Solar Two LLC Project

As agreed in a Power Purchase Agreement (PPA) approved by the CPUC, SDG&E would purchase up to 900 MW of solar power produced at a proposed 8,000-acre Concentrating Solar Power (CSP) facility in the Imperial Valley (see Section B.6.1). At least 600 MW of this total would be transmitted via the SRPL. Stirling Energy Systems (SES) Solar Two, LLC would construct, own and operate the CSP facility and an associated 230 kV transmission line. The CSP site would be leased by SES from BLM, and additional individual private parcels within the site boundaries would be acquired. The transmission line would be constructed within a new ROW easement just north of and adjacent to the SWPL.

As described in Section B.6, the CPUC and BLM have determined that the Stirling CSP facility and associated 230 kV transmission line are so closely related to the Proposed Project as to be considered "connected actions" under the National Environmental Policy Act (NEPA). Therefore, the Stirling site and transmission line are discussed in this EIR/EIS in order to fully disclose the potential for this project to be constructed as a result of the presence of the SRPL (if it is approved and constructed).

Approval of the SRPL would not result in automatic approval of the Stirling CSP facility or transmission line discussed below, and the project would require SES permit applications to CEC and BLM and compliance with CEQA and NEPA, followed by approvals from the CEC and BLM prior to construction on BLM lands. Since groundwater at the site is anticipated to be greater than 100 feet deep, no groundwater impacts from excavation would occur.

Environmental Setting

Project features are located in the Imperial Valley Groundwater Basin. There are eight watercourse crossings identified for the 230 kV transmission line, including only one named watercourse (Yuha Wash). There are other local, incidental watercourses that were not identified because the application for this project has not yet been filed and specific site plans are not available. The surface water resources all consist of dry desert washes as described in Section D.12.2.1, including the Yuha Wash. Depth to groundwater is generally greater than 40 feet.

The Stirling dish site is crossed by eight main desert washes running generally south to north, with numerous smaller local tributary washes. These washes are also dry as described in Section D.12.1.2. These washes are braided, interconnected and subject to lateral erosion.

The three phases of the SES project would require approximately 36,000 solar concentrating dishes, the mirrored surfaces of which would require routine washing that would consume 4.4 gallons of water per Megawatt-hour (MWh) of electricity produced (Stirling, 2007a). At an annual output of 60 MWh per dish (Stirling, 2007a), the wash water requirement of the three-phased project would be approximately 9.5 million gallons per year (30 acre-foot per year; Stirling, 2007b). This volume of water represents 0.03 percent of the total average annual quantity of water delivered to non-agricultural uses in the IID service area (IID, 2007). Washing would be required for the mirrored surfaces of the solar-concentrating dishes, utilize de-mineralized water, and occur an estimated maximum of 11 times per year. SES expects to let wash water run off at the site, but may consider a water collection system at some point in the future if it becomes necessary. SES expects the only pollutant in the runoff to be a small amount of suspended dust that becomes trapped on the surface of the mirrors. The source of the wash water will be

IID water piped in from the nearby canal. The water would be de-mineralized onsite using a pumped filtration system that would require electricity to run (Stirling, 2007b). See also Section D.14 regarding water supply.

Environmental Impacts and Mitigation Measures

The following impacts would not occur for this Connected Action:

- Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater, does not occur. Groundwater in this area is not shallow.
- Impact H-4, groundwater dewatering for project construction could deplete local water supplies, does not occur. Groundwater in this area is not shallow.
- Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property, does not apply. There are no underground transmission components of this connected action.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of all three phases of the CSP facility will take place on a site approximately 8,000 acres in extent. Because of the nature of the design, large solar collection dishes bolstered by a post with an 18-inch-diameter footprint, installation of the solar concentrating devices is anticipated to produce relatively little effect on erosion and sedimentation. However, the density of dishes will be high enough that many will be located in or adjacent to watercourses. Grading for the approximately 525 miles of permanent access roads will cross many watercourses. Construction would disturb the ground surface which could lead to an increased potential for erosion and sedimentation. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity. Since watercourses on the site rarely contain water (average annual rainfall is approximately 2.7 inches), it is unlikely that site development would lead to significant sedimentation.

~~Since~~ Because the project is more than one acre in size, it will be required to comply with the California General Permit for Discharges of Storm Water Associated with Construction Activity as described in Section D.12.3. Compliance will require preparation of and adherence to an SWPPP describing Best Management Practices to protect stormwater quality during construction. BMPs may include silt fencing, straw mulch, straw bale check dams, erosion control blankets, matting, and other fabrics. With Mitigation Measures H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, and H-1i in place, Impact H-1 is less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Construction of the Stirling Solar facility and power line would involve the use of heavy, motorized equipment, including 4 x 4 pickups, fuel trucks, cranes, dozers, forklifts, and concrete trucks. This equipment requires job-site replenishment of hazardous chemicals in the form of fuels, oils, grease, coolants, and other fluids. The accidental spill of these, or other construction-related materials could lead to the discharge of contaminants into surface waters during a storm event, or discharged contaminants could infiltrate into the soil and groundwater below. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. A chemical spill affecting a stream channel or groundwater reserve is considered a significant impact.

Although Impact H-2 is potentially significant, water contamination is unlikely. Streams are dry most of the time, meaning spills are not likely to go into surface water. Groundwater is generally deep enough (greater than 40 feet) that direct disturbance during construction should not occur. With Mitigation Measures H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, H-1i, H-2a, H-2b, ~~and~~ H-2c, and H-2d in place, Impact H-2 is less than significant (Class II). Mitigation Measures P-1a (Implement Environmental Monitoring Plan) and Mitigation Measure P-1b (Maintain emergency spill supplies and equipment) will also be implemented, further reducing impacts.

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-2b **No storage of fuels and hazardous materials near sensitive water resources.** [WQ-APM-9]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

H-2d **Maintain vehicles and equipment.**

P-1a **Implement Environmental Monitoring Plan.**

P-1b **Maintain emergency spill supplies and equipment.**

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of access roads could result in runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the Stirling

Solar site, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff is not likely to have an appreciable impact. Impact H-5 is less than significant without mitigation (Class III) and no mitigation is required.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Transmission towers in the transmission line could be located in stream channels in areas that are subject to erosion. Should this occur, scour at the tower foundation could undermine the foundation and result in the collapse of the tower, increased erosion risk, and power outage. The risk of this impact occurring is minimal, since tower foundation depths, which could be as deep as 40 feet, are deeper than the expected depth of scour.

Within the Stirling site, it may not be possible to completely avoid watercourses with the dishes. However, dish foundations should be deeper than the sour depth, and the effect of the collapse of a dish would not be catastrophic. Mitigation Measure H-6a applies to the dishes as well as to the power line towers. With Mitigation Measures H-1c and H-6a in place, Impact H-6 is less than significant (Class II).

Mitigation Measures for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-6a **Scour protection to include avoidance of bank erosion and effects to adjacent property.**

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from dishes and maintenance equipment at the Stirling site could be released accidentally and contaminate local surface water or groundwater. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. Because the site is dry most of the time, and spills infrequent and small due to the fact that any contaminants at the site will be in small concentrations. However, without mitigation, long-term effects could accumulate and be significant. With Mitigation Measures H-2a and H-7a in place, Impact H-7 is less than significant (Class II).

Mitigation Measures for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-7a **Develop Hazardous Substance Control and Emergency Response Plan for project operation.**

~~D.12.12.2 IID Transmission System Upgrades~~

~~As part of Phase 2 of the Imperial Valley Study Group's development plan (see Section A.4.3), IID would construct a new 230 kV line from the Bannister Substation to a new San Felipe 500/230 kV Substation to interconnect to the proposed Imperial Valley to San Diego 500 kV line (i.e., the Sunrise Powerlink line). This San Felipe Substation could potentially provide an additional interconnection between the IID and CAISO systems, and thus another point for the delivery of renewable resources to Southern California loads. IID would construct, own and operate these upgrades.~~

As described in Section B.6, the CPUC and BLM have determined that these IID Transmission System Upgrades are so closely related to the Proposed Project as to be considered "connected actions" under the National Environmental Policy Act (NEPA). Therefore, IID Transmission System Upgrades are discussed in this EIR/EIS in order to fully disclose the potential for a Bannister–San Felipe 230 kV transmission line and new San Felipe 500/230 kV Substation to be constructed as a result of the presence of the SRPL (if it is approved and constructed).

Approval of the SRPL would not result in automatic approval of the IID Transmission System Upgrades discussed below, and the projects would require applications by IID, compliance with CEQA and NEPA, followed by approvals from the BLM prior to construction on BLM lands.

Environmental Setting

Surface Water. Surface water resources along the IID 230 kV line and at the new San Felipe Substation are listed in Table D.12-1 between MP 32 and MP 58.4 of the SRPL Project (because the new 230 kV line would parallel SRPL), and are typical desert washes. Other minor watercourse crossing may be found along the route. All of the natural watercourses are dry a majority of the year. Table D.12-1 (as well as subsequent similar tables for other project links) includes a column for the groundwater basin below the indicated stream crossing, as well as a column for FEMA floodplain mapping. The FEMA column indicates whether the 100-year floodplain at the crossing has been mapped by FEMA as a flood hazard area. Although mapping is an indicator of designated flood hazard, a flood hazard is still possible on streams not mapped by FEMA. The three named watercourses are: Tarantula Wash, San Felipe Creek, and Fish Creek Wash.

Groundwater. The IID Transmission System Upgrades projects are situated above a designated groundwater basin of the Colorado River Region. Specifically, the transmission line crosses the Ocotillo-Clark Valley (MP IID 0 to IID 21) and Borrego Valley (MP IID 21 to IID 26.3) groundwater basins. The Ocotillo-Clark and Borrego Valley basins are alluvial basins underlain by non water bearing crystalline bedrock. Depth to groundwater is approximately 240 feet in the Ocotillo-Clark Basin (California Department of Water Resources, 2003). Depth to groundwater in the Borrego Valley Basin is at least 110 feet (California Department of Water Resources, 2007). Recharge is by percolation of runoff. High TDS, sulfate, chloride, and fluoride concentrations locally impair groundwater for domestic and irrigation use in the Ocotillo-Clark Basin. High TDS content, as well as nitrates sodium, sulfate, chloride, iron, and boron are of concern in the Borrego Valley Basin. See Section D.14 for discussion of water supply.

Environmental Impacts and Mitigation Measures

Impact H-8 (Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property) would not occur for this project because there are no underground transmission components of this connected action.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of the overhead transmission line towers, substations, pull stations, and access roads, would require excavation and grading for roads and towers. Towers (approximately 171 total towers) would be located with spans of approximately 900 feet and disturbance would be between 64 to 79 square feet

depending on tower design. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. This impact would apply to all watercourses along the route (Table D.12-1).

This impact is considered not significant (Class III). Streams crossed by the Imperial Valley Link are dry except during infrequent periods of brief rainfall of sufficient intensity to produce runoff. Construction in or near a dry streambed is not likely to cause erosion related degradation of water quality. The project will be required to prepare and comply with an SWPPP under the California General Permit for Discharges of Storm Water Associated with Construction Activity. The SWPPP will address Best Management Practices to protect stormwater quality during construction. BMPs may include silt fencing, straw mulch, straw bale check dams, erosion control blankets, matting, and other fabrics. With Mitigation Measure H-1c in place, Impact H-1 is less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1c Minimize construction and maintenance disturbance to riparian areas. [WQ-APM-1]

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. This impact would apply to all watercourses along the 230 kV route (Table D.12-1), and the Ocotillo-Clark Valley and Borrego Valley basins.

Although Impact H-2 is potentially significant, water contamination is unlikely. Streams are dry most of the time, meaning spills are not likely to go into surface water. Groundwater is generally deep enough (greater than 40 feet) that direct disturbance during construction should not occur. With Mitigation Measures H-1c and H-2a in place, Impact H-2 is less than significant (Class II). Mitigation Measures P-1a (Implement Environmental Monitoring Plan) and Mitigation Measure P-1b (Maintain emergency spill supplies and equipment) will also be implemented, further reducing impacts.

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1c Minimize construction and maintenance disturbance to riparian areas. [WQ-APM-1]

H-2a Groundwater testing and treatment before disposal. [WQ-APM-8]

H-2d Maintain vehicles and equipment.

P-1a Implement Environmental Monitoring Plan.

P-1b Maintain emergency spill supplies and equipment.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Excavation for tower foundations in shallow groundwater could contaminate groundwater through accidental material spills. This impact is unlikely to occur primarily for the reason that groundwater in the Ocotillo-Clark and Borrego Valley groundwater basins at the location of the project is typically

deeper than the expected depth of excavation (excavation will be less than 40 feet in comparison to at least 40 feet depth for groundwater).

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class III)

Impact H-4 is less than significant (Class III)unlikely for the same reasons as for Impact H-3. This impact is unlikely to occur primarily because groundwater in the Ocotillo-Clark and Borrego Valley groundwater basins at the location of the project is typically deeper than the expected depth of excavation (excavation will be less than 40 feet in comparison to at least 40 feet depth for groundwater). Nonetheless, reduced water flows in wells and springs as a result of blasting for tower foundations would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measure H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II and Class III)

IID Bannister-San Felipe 230 kV Transmission Line. Construction of substations, tower foundations and access roads could result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the 230 kV transmission line, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff is not likely to have an appreciable impact. For this transmission line, Impact H-5 would be less than significant (Class III).

San Felipe 500/230 kV Substation. The San Felipe Substation will have a building pad of approximately 20 acres which will have a higher runoff coefficient than the existing ground, resulting in the potential for increased local peak flow rates, volumes and runoff frequency. This impact would be local and in the drainageways immediately downstream of the substation. Effects would diminish to negligible in the downstream direction as overall watershed size increases. Local increases in runoff could be substantial, resulting in a potential for local offsite erosion which would occur in the area immediately downstream of the substation. With implementation of Mitigation Measure H-5a, Impact H-5 would be less than significant (Class II) for this substation.

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream

H-5a Install substation runoff control.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Impact H-6 is likely to occur only where power poles or other permanent project features are constructed in or closely adjacent to a watercourse.

Impact H-6 can be avoided through proper design of towers and other structures that are placed in or near watercourses. Design mitigation could include measure such as protected footings, footings located below the expected scour depth, bank protection, or modified placement of towers. Such mitigation, properly designed and implemented, can protect towers located at even high risk locations. However, tower protection measures could themselves result in adverse impacts to adjacent property. Therefore, impacts prior to mitigation would be significant. With Mitigation Measures H-1c and H-6a in place, Impact H-6 would be less than significant (Class II).

Mitigation Measures for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-1c Minimize construction and maintenance disturbance to riparian areas. [WQ-APM-1]

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment at the San Felipe Substation could be released accidentally and contaminate local surface water or downstream groundwater. Should a spill occur it could enter directly into surface water, resulting in a significant impact. With Mitigation Measures H-2a and H-7a in place, Impact H-7 would be less than significant (Class II).

Mitigation Measures for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-2a Groundwater testing and treatment before disposal. [WQ-APM-8]

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

D.12.12.2~~3~~ Esmeralda–San Felipe Geothermal Project

An EIS is currently being prepared by BLM to analyze the leasing of geothermal resources exploration, development, and utilization in the Truckhaven Geothermal Leasing Area (Truckhaven) located in western Imperial County, California (refer to Figure B-46). Currently, BLM has non-competitive geothermal lease applications pending for portions of this land, including lease applications from Esmeralda Energy, LLC (Esmeralda). However, the land must first be assessed under NEPA regulations before granting leases. Under the Proposed Action analyzed in the EIS, BLM would approve the pending non-competitive leases and offer competitive leases for all other available lands at Truckhaven.

The Esmeralda–San Felipe Geothermal Project would develop 20 MW of geothermal resources within the Truckhaven Geothermal Leasing Area; however, Esmeralda is not able to submit a project application to BLM for the Esmeralda–San Felipe Geothermal Project until their pending lease applications with BLM for Truckhaven are approved. In the absence of a formal Project application, it is assumed that roughly half of the components identified under the Reasonably Foreseeable Development (RFD) scenario

in BLM's Truckhaven EIS would apply to the Esmeralda–San Felipe Geothermal Project. Additionally, the description of the environmental setting and likely impacts are partially adapted from the Draft EIS for the Truckhaven Geothermal Leasing Area (February 2007). The RFD describes the anticipated development that would occur at Truckhaven to facilitate geothermal resources exploration, development and utilization should the leases be approved by BLM and include new wells, a power plant and transmission lines, as described in Section B.6.3. Geothermal energy uses heat from the earth, extracted through geothermal wells in the form of steam or brine, which is then transported via pipeline and used to drive turbines, which drive electricity generation.

As described in Section B.6, the CPUC and BLM have determined that the Esmeralda–San Felipe Geothermal Project is so closely related to the Proposed Project as to be considered a "connected action" under NEPA. Therefore, the Esmeralda–San Felipe Geothermal Project is discussed in this EIR/EIS in order to fully disclose the potential for a new geothermal plant and associated linears to be constructed as a result of the presence of the SRPL (if it is approved and constructed). Approval of the SRPL would not result in automatic approval of the Esmeralda–San Felipe Geothermal Project discussed below, and the project would require applications by Esmeralda Energy, LLC, compliance with CEQA and NEPA, followed by approvals from the BLM prior to construction on BLM lands.

Environmental Setting

The project is located in the Salton Basin, a 7,851 square miles watershed. The Salton Basin is a closed basin; no streams or rivers flow out of the Salton Sea. Within the Salton Basin, approximately two-thirds of the Truckhaven Lease Area is located in the West Salton Hydrologic Unit and the remaining one-third is in the Ocotillo Lower Felipe Hydrologic Area. Average local precipitation is approximately 2.5 inches per year and surface runoff is generally to the northeast, toward the Salton Sea.

The Salton Sea and its two primary tributaries, the Alamo River and the New River (both located south and west of the project site), are the most prominent surface waterbodies in the project vicinity. Prominent ephemeral drainages in the Truckhaven Leasing Area include Tule Wash and Campbell Wash, which drain most of the northern and central portions of Truckhaven. The southern portion of the site is drained by the Tarantula Wash and a series of other tributaries to San Felipe Creek. All drainage is to the Salton Sea. These watercourses are dry except during infrequent periods of heavy rain.

Groundwater in the area is categorized under the Imperial Valley Planning Area according to the Region 7 basin plan. Groundwater in the site generally flows toward the axis of the Imperial Valley and then north toward the Salton Sea. The Regional Water Quality Control Board (RWQCB) lists the beneficial uses of the groundwater in the area as municipal and agricultural. However, due to the elevated concentrations of fluoride, boron and total dissolved solids (TDS), the groundwater in the area is of marginal to poor quality for irrigation and domestic purposes. Geothermal fluids below 7,000 feet would be used in the Esmeralda–San Felipe geothermal project. The geothermal fluids in the area are expected to contain suspended solids and a maximum of 5,000 parts per million of TDS. Most geothermal plants, such as Esmeralda–San Felipe, have Waste Discharged Requirements obtained from the RWQCB on surface impoundments and drilling sumps to temporarily store geothermal waste.

Environmental Impacts and Mitigation Measures

Geothermal exploration and development is not expected to substantially alter the existing drainage patterns because grading the project would not require significant landform modification. A separate NEPA compliance document (EIS or Environmental Assessment) and a groundwater study will be performed prior to construction of the Esmeralda–San Felipe Geothermal Project.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

The construction activities associated with geothermal exploration and development have the potential for adverse impacts to surface water quality, especially through erosion of disturbed soil and resulting sedimentation. Accelerated wind and water-induced erosion may result from earthmoving activities associated with construction of the Esmeralda–San Felipe Geothermal Project. Precipitation, or high intensity and short duration runoff events coupled with ground disturbing activities, can result in onsite erosion eventually increasing the sediment load into nearby waters, notably the Salton Sea. Soils devoid of vegetation have a high potential for erosion, particularly when disturbed. Background levels of erosion and sedimentation would also be high for the same reason. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity.

A Stormwater Pollution Prevention Plan will be required for construction of this facility. This SWPPP will outline best management practices that will control sedimentation during construction. However, since the project will involve extensive construction and grading over the site area, it is recommended that a drainage plan be developed to ensure minimal long-term disturbance to drainage patterns. Before mitigation, Impact H-1 will be significant. Mitigation Measure H-1a, which would apply to the entire geothermal site, is required to mitigate to less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a **Prepare Substation Grading and Drainage plan; construct during the dry season.**

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Accidental spills or disposal of harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, used during construction could wash into and pollute surface waters or groundwater. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. Although Impact H-2 is potentially significant, water contamination is unlikely. Streams are dry most of the time, meaning spills are not likely to go into surface water. With Mitigation Measures H-1c, H-2a and H-~~2a~~ 2d in place, Impact H-2 is less than significant (Class II). Mitigation Measures P-1a (Implement Environmental Monitoring Plan) and Mitigation Measure P-1b (Maintain emergency spill supplies and equipment) should also be required.

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-2d **Maintain vehicles and equipment.**

P-1a **Implement Environmental Monitoring Plan.**

P-1b **Maintain emergency spill supplies and equipment.**

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

Excavation for geothermal wells and other project facilities, including tower foundations in shallow groundwater could contaminate groundwater if oil from excavation equipment is spilled into the excavation pit. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for chemical and physical quality. However, per BLM permit requirement, any facilities related to geothermal exploration and development must be designed with appropriate standards to protect against such releases. Geothermal brines near the Salton Sea are typically of low quality so the geothermal groundwater does not have other beneficial uses (i.e., as drinking water). With Mitigation Measure H-2a (Adoption of project APMs) in place, degradation of groundwater quality would be less than significant with mitigation (Class II).

Mitigation Measure for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-2a Groundwater testing and treatment before disposal. [WQ-APM-8]

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class III)

Due to the anticipated depth of the geothermal wells it is possible that groundwater dewatering may be required for project construction. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for groundwater overdraft. G~~However, g~~roundwater in areas of geothermal resources is typically of poor quality and does not have other beneficial uses and therefore would not be a part of local water supplies. Impact H-4 is less than significant (Class III).

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of project facilities, including roads, would result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas. Presence of the Esmeralda–San Felipe Geothermal Project may locally increase runoff by this process, but the total area affected would be small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff is not likely to have an appreciable impact. Flooding or increased erosion resulting from increased runoff is considered adverse, but less than significant (Class III) and no mitigation is required.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class III)

The major drainages such as Tule Wash or San Felipe Creek are subject to flash floods during heavy rain storms and are located within 100-year flood zones. Flash floods could cause damage to roads, pipelines, or other project structures. However, per BLM permitting requirements, geothermal development would be sited to avoid these areas, thereby ensuring this adverse impact is less than significant (Class III).

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents.

The RFD scenario development of wells, pipelines, and power facilities could cause indirect impacts to surface or groundwater quality due to a pipeline rupture, leakage, or failure from a surface impoundment or well casing leakage. Pipeline, pond, or well failures could be related to a seismic event. Any facilities related to geothermal exploration and development would be designed in accordance with appropriate standards to protect against such releases. Geothermal brines near the Salton Sea are typically of such a quality that the geothermal groundwater does not have other beneficial uses; thus, any contamination that would occur would not compromise any beneficial use. While the risk associated with potential impacts to groundwater quality is low, Mitigation Measures H-2a and H-7a are still required to ensure that Impact H-7 is less than significant (Class II).

Mitigation Measures for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-7a **Develop Hazardous Substance Control and Emergency Response Plan for project operation.**

~~D.12.12.4 Jacumba Substation Project~~

~~In its testimony during the CPUC's Phase 1 hearings on the need and economics of the Proposed Project, SDG&E staff stated that a new 230/500 kV substation would be required to allow future wind generation projects to transmit generated power via the existing 500 kV Southwest Powerlink (SWPL) transmission line. The SWPL currently has limited available capacity, but if the Sunrise Powerlink Project is approved and constructed, some electricity currently carried by the SWPL will be transmitted via Sunrise, making more capacity available on the SWPL. There are a number of possible new wind generation projects near the Jacumba area (about 5 miles west of the San Diego/Imperial County line), some in San Diego County (Crestwood wind area) and some in Mexico (La Rumorosa wind area). Therefore, the impacts of this substation are evaluated as part of the Proposed Project.~~

~~This 230/500 kV substation would allow incoming transmission lines at 230 kV from wind farms in either the Crestwood or La Rumorosa areas. The power would be transformed to 500 kV in order to allow it to be transmitted via the SWPL to the Miguel Substation in San Diego. The substation is assumed to occupy about 20 acres, and while its location has not been defined by SDG&E, for the purposes of this EIR/EIS it is assumed to be located just east of the point where the Interstate 8 Alternative diverges from the SWPL. Figure B-47 illustrates the approximate location and size of the substation area. The impacts of this substation are also evaluated as a part of the wind component of the Non Wires In Area Renewable Generation Alternative, as defined and analyzed in Section E.5. Approval of the SRPL would not result in automatic approval of the Jacumba Substation discussed below, and the project would require applications by SDG&E, and compliance with CEQA and NEPA.~~

~~Environmental Setting~~

~~This substation will be situated on the Coyote Wells Valley Groundwater Basin. The Coyote Wells Valley groundwater basin is an EPA designated Sole Source Aquifer. This means the aquifer supplies~~

more than 50% of a community's drinking water. Any project which is financially assisted by federal grants or federal loan guarantees, and which has the potential to contaminate a sole source aquifer, should be modified to reduce or eliminate the risk (U.S.EPA, 2007.)

The Coyote Wells Groundwater Basin, located near the international border with Mexico in the western Yuha Desert west of Imperial Valley, is in unconsolidated sediment up to 650 feet thick. Water bearing zones are mostly 100 to 300 feet below ground surface. Unconfined shallow groundwater exists in parts of the basin, but the quality of the water is poor. Natural fluoride levels in some wells are as high as 3.5 mg/L (California Department of Water Resources, 2007).

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

The Jacumba Substation will be approximately 20 acres in size and require substantial local grading. The substation site has no identified water resources; it is located approximately 1.0 mile from the Carrizo Creek. Construction related erosion and sedimentation at this substation could be substantial during a rainfall event. Impacts to water quality would be significant without mitigation. Implementation of Mitigation Measure H-1a would reduce this impact to a less than significant level (Class II.) The full text of all mitigation measures is in Appendix 12.

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a Prepare Substation Grading and Drainage Plan; construct during the dry season.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Although there are no watercourses at the site, downstream watercourses, specifically the Carrizo Creek, could be degraded through spills of contaminants such as oil, grease and gasoline from construction activities, resulting in a significant impact without mitigation. With implementation of Mitigation Measures H-1h, H-2a, H-2b, and H2c, Impact H-2 is less than significant (Class II).

Mitigation measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1h Compliance with NPDES regulations. [WQ-APM-14]

H-2a Groundwater testing and treatment before disposal. [WQ-APM-8]

H-2b No storage of fuels and hazardous materials near sensitive water resources. [WQ-APM-9]

H-2c Proper disposal and clean-up of hazardous materials. [WQ-APM-13]

H-2d Maintain vehicles and equipment.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

Excavation for the substation foundation in shallow groundwater could contaminate groundwater through accidental material spills. The depth to groundwater in the Coyote Wells Groundwater Basin is generally 100 to 300 feet below ground surface, below depth of excavation. However, some unconfined shallow groundwater exists in parts of the basin. Should groundwater be encountered, implementation

of Mitigation Measures H-1d, H-2b, H-2c, and H-1h would reduce impacts to groundwater quality to less than significant (Class II).

Mitigation Measures for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-1d Avoid watercourses to the maximum extent possible. [WQ-APM-2]

H-2b No storage of fuels and hazardous materials near sensitive water resources. [WQ-APM-9]

H-2c Proper disposal and clean-up of hazardous materials. [WQ-APM-13]

H-1h Compliance with NPDES regulations. [WQ-APM-14]

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II and III)

Dewatering for substation construction in the Coyote Wells Groundwater Basin could result in a local and temporary drawdown of groundwater levels which could temporarily reduce the yield of nearby water supply wells; however it is less likely to occur due to the depth of the groundwater basin. Should this occur, Mitigation Measure H-4a would require identification of such wells and provision of alternate water supplies during the period of depletion, thereby decreasing this impact to a less than significant level. It is possible that excavation for the substation, especially near drainageways, would encounter local subsurface water. Dewatering could result in a local drawdown of water levels that could temporarily affect the water supply to local vegetation. This impact would be temporary and localized, should not have any long-term adverse effect (Class III), and no mitigation is required.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4a Avoid using source water and provide alternative sources where avoidance is not possible. [WQ-APM-6]

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II)

The substation would have a building pad of approximately 20 acres which would have a higher runoff coefficient than the existing ground, resulting in increased local peak flow rates, volumes and runoff frequency. This impact would be local and in the drainage ways immediately downstream of the substation. Effects would diminish to negligible in the downstream direction as overall watershed size increases.

Local increases in runoff could be substantial, resulting in local offsite erosion which would occur in the area immediately downstream of the substation. Impact H-5 would be significant without mitigation; however, Mitigation Measure H-5a would reduce this impact to less than significant (Class II.)

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream

H-5a Install substation runoff control.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment at the substation could be released accidentally and contaminate local surface water or downstream groundwater. No spill would enter directly into surface water, although a large spill could travel downstream into the Carrizo Creek, resulting in a significant impact without mitigation. Mitigation Measure H-2c will mitigate this impact by requiring clean-up of spills and proper storage and disposal of contaminants. Additionally, Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. Implementation of these mitigation measures would reduce impacts to water quality to less than significant levels (Class II.)

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-2c Proper disposal and clean-up of hazardous materials. [WQ-APM-13]

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

D. 12.12.5 SCE La Rumorosa Wind Project

Environmental Setting

United States. A new 230 kV transmission line would be required to connect the "Rumorosa Wind Developers II" (RWD) to the existing 500 kV SWPL (about 10 miles to the north of the existing Tijuana/La Rosita 230 kV Transmission line). The 1.7 miles of new 230 kV transmission line would be sited on primarily private land in the San Diego County, approximately 1000 feet west of the outskirts of the Town of Jacumba. This region is situated on the Coyote Wells Valley Groundwater Basin. The Coyote Wells Valley groundwater basin is an EPA designated Sole Source Aquifer. This means the aquifer supplies more than 50% of a community's drinking water. Any project which is financially assisted by federal grants or federal loan guarantees, and which has the potential to contaminate a sole source aquifer, should be modified to reduce or eliminate the risk (EPA, 2007).

The Coyote Wells Groundwater Basin, located near the international border with Mexico in the western Yuha Desert west of Imperial Valley, is in unconsolidated sediment up to 650 feet thick. Water bearing zones are mostly 100 to 300 feet below ground surface. Unconfined shallow groundwater exists in parts of the basin, but the quality of the water is poor. Natural fluoride levels in some wells are as high as 3.5 mg/L (California Department of Water Resources, 2007).

Mexico. The RWD wind turbines and associated transmission lines would be sited in La Rumorosa, Baja California. La Rumorosa is situated in the northern region of the municipality of Tecate, which has a low hydrologic potential. The rivers of this region, the "Calabazas," "Agua Grande," "San Pablo," "El Cuartel," and "Agua Azul" run only during the rainy season. La Rumorosa borders two hydrological regions. The first is over the water basin "Arroyo Agua Dulce Santa Clara" (GobBC, 2007). This underground basin is bordered on the east side by the Sierra de Juárez Mountains and on the west by the Sierra Cucapah. These conditions create areas where drainage is poor and lagoons are formed as none of the rivers in this region can reach the Gulf of California. It is considered a closed basin. The use of this water is primarily for agriculture and ranching as well as domestic use. (GobBC, 2007).

La Rumorosa also borders the Colorado River region. The Colorado River, which has its origin in the United States, crosses approximately 55 miles within Baja California. This river does not always run within this region. Both the Hardy and Nuevo rivers are caused by agricultural runoff from the

~~Mexicali region, in addition to runoff of the Colorado River. They are primarily used for irrigation. (GobBC, 2007)~~

~~Baja California does not have permanent aquifers. The hydrologic system is very reduced, with a high level of evaporation, and adverse geologic conditions (GobBC, 2007). The majority of the geological formations allow rain to flow freely due to the steep contours of this area. As such, very few of the aquifers get recharged and according to the geologic hydrologic conditions of the State of Baja California, water for the entire territory is in danger of depletion. The Tecate region currently imports some of its water from the United States, and receives the rest from underground aquifers. (Tecate Government, 2007)~~

~~Environmental Impacts and Mitigation Measures~~

~~Construction Impacts~~

~~Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)~~

~~United States and Mexico.~~ ~~Construction of the wind tower/turbines, access/spur roads, switchyard, substation, and operation and maintenance facilities and the transmission lines would require excavation and grading. In addition, construction of the underground interconnections from the tower/turbines to the switchyard would require trench excavation and grading. Ground disturbing activities which lead to this impact would be extensive, particularly in areas where existing roads are not sufficient for access. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Rivers in the La Rumorosa region do not run year round, however there transmission line would cross regional rivers near the *Rancho Las Manantiales* in the Luis Echeverria Alvarez region.~~

~~Degradation of water quality due to erosion and sedimentation would be mitigable to less than significant levels (Class II). Mitigation includes preparation of a Storm Water Pollution Prevention Plan (H-1a), placement of structures and roadways shall avoid watercourses to the extent feasible (H-1d), establishment of exclusion zones along waterways (H-1e), installation of sedimentation control measures (H-1f), and construction of waterway crossings during low flow periods (H-1g). The full text of all mitigation measures is in Appendix 12.~~

~~Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation~~

~~H-1a Prepare Substation Grading and Drainage Plan; construct during the dry season.~~

~~H-1d Avoid watercourses to the maximum extent possible.~~ ~~[WQ-APM-2]~~

~~H-1e Identify and mark sensitive areas for avoidance.~~ ~~[WQ-APM-3]~~

~~H-1f Develop and implement construction Best Management Practices.~~ ~~[WQ-APM-4]~~

~~H-1g Stream crossings at low flow periods.~~ ~~[WQ-APM-5]~~

~~Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III for the United States; Class II for Mexico)~~

~~United States.~~ ~~Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area or spill or leak include lead based paint flakes, diesel fuel, gasoline, lubrication~~

oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. Because of the limited waterways and depth to groundwater in the RWD project area, degradation of water quality through the spill of potentially harmful materials is adverse but insignificant (Class III) and no mitigation is required.

Mexico. Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids.

Although there are limited waterways and many of the waterways do not run during the dry season, degradation of water quality could still occur as the rivers do not follow a well established path. In addition, the depth to groundwater in the RWD project area is unknown (No Data Available). Mitigation Measures H-1c (Minimize construction and maintenance disturbance to riparian areas), H-1d (Avoid watercourses to the maximum extent possible), and H-1i (Construction routes to avoid and minimize disturbance to stream channels) would situate construction activities away from streams where possible. Mitigation Measures H-2a (Groundwater testing and treatment before disposal), H-2b (No storage of fuels and hazardous materials near sensitive water resources), and H-2c (Proper disposal and clean-up of hazardous materials)address the issue of water quality contamination through material spills by ensuring that excavated groundwater (if contaminated) not be returned to the natural system, proper storage and handling of hazardous materials, and proper materials disposal and clean-up during construction. These impacts would be less than significant (Class II) with implementation of the measures listed below.

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1c Minimize construction and maintenance disturbance to riparian areas. [WQ-APM-1]

H-1d Avoid watercourses to the maximum extent possible. [WQ-APM-2]

H-1i Construction routes to avoid and minimize disturbance to stream channels. [WQ-APM-15]

H-2a Groundwater testing and treatment before disposal. [WQ-APM-8]

H-2b No storage of fuels and hazardous materials near sensitive water resources. [WQ-APM-9]

H-2c Proper disposal and clean-up of hazardous materials. [WQ-APM-13]

H-2d Maintain vehicles and equipment.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

United States. The RWD project areas would be located in the Coyote Wells Valley Groundwater Basin. Since the depth to groundwater in this basin generally exceeds 50 feet, which is below the maximum depth of tower construction, there is little possibility of encountering and degrading groundwater during construction. However, unconfined shallow groundwater exists in parts of the basin. In these regions, degradation of groundwater quality would be a significant impact. Mitigation would reduce impacts to less than significant. (Class II) Recommended mitigation includes: (1) minimize disturbance to watercourses, (2) avoid placement of structures within watercourses, (3) storage of fuels and hazardous materials will be prohibited within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells, (4) no disposal of hazardous materials into the ground or underlying

groundwater, (5) secure a General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit), and (6) prepare and implement a Stormwater Pollution Prevention Plan.

Mexico. The RWD project areas would be located in the "Arroyo Agua Dulce Santa Clara" water basin. Depth to groundwater in this basin is unknown; however, this underground basin is bordered on the east side by the Sierra de Juárez Mountains and on the west by the Sierra Cucapah. These conditions create areas where drainage is poor and lagoons are formed as none of the rivers in this region can reach the Gulf of California. Such conditions may also create a shallow depth to groundwater which would lead to the possibility of encountering and degrading groundwater during construction. Degradation of groundwater, if encountered, would be a significant impact without mitigation. Mitigation listed below would reduce impacts to less than significant. (Class II)

Mitigation Measures for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-1c Minimize construction and maintenance disturbance to riparian areas. [WQ-APM-1]

H-1d Avoid watercourses to the maximum extent possible. [WQ-APM-2]

H-2b No storage of fuels and hazardous materials near sensitive water resources. [WQ-APM-9]

H-2c Proper disposal and clean-up of hazardous materials. [WQ-APM-13]

H-1h Compliance with NPDES regulations. [WQ-APM-14] (For the United States only)

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II)

United States. The RWD project areas would be located in the Coyote Wells Valley Groundwater Basin. Because the depth to groundwater in this basin generally exceeds 50 feet, which is below the maximum depth of tower construction, there is little possibility of encountering and degrading groundwater during construction. However, unconfined shallow groundwater exists in parts of the basin. Blasting for tower foundations could reduce flows in wells and streams, and Ddewatering for tower construction in shallow parts of the basin could result in a local and temporary drawdown of groundwater levels which could temporarily reduce the yield of nearby water supply wells, resulting in a significant impact, mitigable to less than significant level (Class II) with implementation of Mitigation Measure H-4a, which requires identification of wells and provision of alternate water supplies during the period of depletion.

Mexico. The RWD project areas would be located in the "Arroyo Agua Dulce Santa Clara" water basin. Depth to groundwater in this basin is unknown; however, this underground basin is bordered on the east side by the Sierra de Juárez Mountains and on the west by the Sierra Cucapah. These conditions create areas where drainage is poor and lagoons are formed as none of the rivers in this region can reach the Gulf of California. Such conditions may also create a shallow depth to groundwater. Blasting for tower foundations could reduce flows in wells and streams, and dDewatering for tower or wind farm construction in shallow parts of the basin could result in a local and temporary drawdown of groundwater levels which could temporarily reduce the yield of nearby water supply wells, resulting in a significant impact mitigable to a less than significant level (Class II) with implementation of Mitigation Measure H-4a, which requires identification of wells and provision of alternate water supplies during the period of depletion, and Mitigation Measure H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4a **Avoid using source water and provide alternative sources where avoidance is not possible.** [WQ-APM-6]

H-4b **Avoid blasting where damage to groundwater wells or springs could occur.**

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

United States and Mexico. Construction of the switchyard, substation, operation and maintenance facilities, tower foundations, underground interconnections, transmission line, and access/spur roads could result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the RWD project, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III) and no mitigation is required.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II for the United States, No Available Data for Mexico)

United States and Mexico. Encroachment of project tower/turbine structures or associated facilities into a flow path or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. This impact is likely to occur only where other permanent project features are constructed in or closely adjacent to a watercourse. The new transmission line crosses Boundary Creek in the United States, and several unnamed creeks near *Rancho Las Manantiales*, Luis Echeverria Alvarez in Tecate. Placement of wind towers in watercourses is unlikely because wind tower/turbines would be sited along hill tops and ridges where optimum wind conditions exist. However, project access roads could traverse a flow path or floodplain.

Impacts to water resources from flooding or erosion caused by locating RWD project structures or associated facilities in a floodplain or watercourse would be significant without mitigation. Implementation of Mitigation Measures presented below would reduce this impact to less than significant levels (Class II).

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

H-6a **Scour protection to include bank erosion and effects to adjacent property.**

H-8a **Bury power line below 100-year scour depth.**

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

United States and Mexico. Oil and other contaminants could be used to maintain the transmission lines, wind towers/turbines and associated facilities and the equipment used for maintenance. These contaminants would likely be stored at the Jacumba Substation and would be subject to the regulation of the facility. During their use or storage, oil or other contaminants could be released accidentally and contaminate local surface water or groundwater. Contamination of groundwater in the area is unlikely given the depth to groundwater in the RWD project area. Further, unless the operation and maintenance facilities or substation are located near waterways, the potential to degrade surface water is nominal.

Degradation of water quality from the accidental release of contaminants would be a significant impact without mitigation. Implementation of Mitigation Measure H-7a would reduce this impact to less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (No Impact for the United States; Class II for Mexico)

United States. There would be no underground portions of the transmission line within the RWD project situated in the United States and therefore no potential damage from stream scour.

Mexico. During flow events stream channel beds can become scoured to the point where objects buried beneath them could be exposed. The depth of scour is generally greater with larger magnitude flood events. The RWD project would include the undergrounding of power line interconnections between the wind turbines and the switchyard. While there are limited waterways in the project area, the burying of an interconnection under a waterway may be required. Exposure of the buried power line could result in damage to the line or in damage to adjacent property as the exposed line exacerbates the potential for local scour. At places where the buried power line interconnections cross below stream beds, the burial depth should be great enough to protect against scour.

The potential for underground portions of the RWD project to be subject to damage from scour is considered to be mitigable to less than significant levels (Class II). Available mitigation includes Mitigation Measures H-6a and H-8a, both requiring that the power lines be buried below the 100-year scour depth.

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

H-8a Bury power line below 100-year scour depth.

D.12.13 Overall Water Impacts of Proposed Project

Construction Impacts

Most transmission line impacts of the Proposed Project to water resources are less than significant (Class III). The major potential impacts are related to construction (access roads and transmission towers), which could disturb sediments and release contaminants that could enter surface water or groundwater.

No significant unavoidable impacts were found. Impacts which would be significant and require mitigation include degradation of water quality through construction activities at the Los Peñasquitos Canyon Preserve (Impacts H-1 and H-2), ~~; and~~ degradation of groundwater quality through project excavation at the Los Peñasquitos Canyon Preserve (Impact H-3), and degradation of groundwater quality and flows in the Imperial Valley, Anza Borrego, and Central Links (Impact H-4).

The Proposed Project Substation impacts are primarily associated with project construction, which could result in water quality contamination through erosion and sediment release or material spills during construction, and contamination through material spills during project operation. No significant unavoidable impacts were found. Generally, impacts from construction-related contamination will be less than significant. Impacts which require mitigation include degradation of water quality through construction activities at the Central East Substation (Impacts H-1 and H-2).

Future Transmission System Expansion and Connected Action and Indirect Effects impacts are primarily associated with construction, which could result in water quality contamination through erosion and sediment release or material spills during construction. Impacts which require mitigation include degradation of water quality due to erosion and sedimentation during construction (Impact H-1); degradation of water quality due to construction-related spills of hazardous materials (Impact H-2); degradation of groundwater quality through excavation during construction (Impact H-3); and depletion of water supplies through dewatering (Impact H-4).

Operation Impacts

Operation impacts of the Proposed Project transmission line are mainly related to potential interference of the proposed towers and other line components with stream flows. Specifically, the towers could obstruct flows or themselves be subject to damage from flooding or erosion. This risk is highest in the two desert links, in which there are multiple unstable stream courses that could potentially interact adversely with the power line structures.

No significant unavoidable impacts were found. Impacts which would be significant and require mitigation include possible exacerbation of flood and erosion hazards by tower placement (Impact H-6); and potential stream scour damage to underground portions of the power line (Impact H-8).

No significant unavoidable impacts were found from the operation of the Proposed Project Substations. Impacts which require mitigation include accidental releases of contaminants from project facilities (Impact H-7); and increased runoff potential at the Central East Substation (Impact H-5).

No significant unavoidable operation impacts were found within the Future Transmission System Expansion and the Connected Actions and Indirect Effects. Impacts which require mitigation include increased runoff through creation of new impervious areas (Impact H-5); flood diversions or increased erosion through placement of project features in a flow path (Impact H-6); accidental releases of contaminants from project facilities (Impact H-7); and damage through stream scour at locations where underground project features are beneath watercourses (Impact H-8).

Environmental Impacts and Mitigation Measures for Alternatives Along Proposed Project Route

Table D.12-16 summarizes the impacts that have been identified for the alternatives along the Proposed Project route.

Table D.12-16. Impacts Identified – Alternatives – Hydrology and Water Resources

Impact No.	Description	Impact Significance
FTHL Eastern Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II~~I~~
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
SDG&E West of Dunaway Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II~~I~~
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or water-course could result in flooding, flood diversions, or erosion	Class II
SDG&E West Main Canal–Huff Road Modification Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II~~I~~
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
Partial Underground 230 kV ABDSP SR78 to S2 Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II~~I~~
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or water-course could result in flooding, flood diversions, or erosion	Class II
H-7	Accidental releases of contaminants from project facilities could degrade water quality	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
Overhead 500 kV ABDSP within Existing ROW Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III

Table D.12-16. Impacts Identified – Alternatives – Hydrology and Water Resources

Impact No.	Description	Impact Significance
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II~~I~~
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or water-course could result in flooding, flood diversions, or erosion	Class II
Santa Ysabel Existing ROW Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or water-course could result in flooding, flood diversions, or erosion	Class II
Santa Ysabel Partial Underground Alternative; Santa Ysabel SR79 All Underground Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
SDG&E Mesa Grande Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
CNF Existing 69 kV Route Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or water-course could result in flooding, flood diversions, or erosion	Class II
Oak Hollow Road Underground Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
San Vicente Road Transition Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
Chuck Wagon Road Transition Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III

Table D.12-16. Impacts Identified – Alternatives – Hydrology and Water Resources

Impact No.	Description	Impact Significance
H-6	Transmission towers or other aboveground project features located in a floodplain or water-course could result in flooding, flood diversions, or erosion	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
Pomerado Road to Miramar Area North		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or water-course could result in flooding, flood diversions, or erosion	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
Los Peñasquitos Canyon Preserve–Mercy Road Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
Black Mountain to Park Village Road Underground Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
Coastal Link System Upgrade Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-7	Accidental releases of contaminants from project facilities could degrade water quality	Class II
Top of the World Substation Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class II
H-7	Accidental releases of contaminants from project facilities could degrade water quality	Class II

D.12.14 Imperial Valley Link Alternatives Impacts and Mitigation Measures

There are three alternatives analyzed in the Imperial Valley Link, the FTHL Eastern Alternative, the SDG&E West of Dunaway Alternative, and the SDG&E West Main Canal–Huff Road Modification Alternative.

D.12.14.1 FTHL Eastern Alternative

This alternative was developed by the EIR/EIS team as a way to avoid almost 2 miles within the Flat-Tailed Horned Lizard (FTHL) Management Area. Instead the 500 kV overhead route would follow section lines within agricultural lands and would be approximately 1.5 miles shorter than the proposed route.

Environmental Setting

The FTHL Eastern Alternative would depart to the north from the Proposed Project alignment near MP 3. It traverses primarily agricultural land for 4.6 miles, where it rejoins the Proposed Project alignment near MP 9. The first 1,600 feet of this alternative is through natural desert with no watercourse crossings. It then travels along the edge of agricultural land until it again reaches the Proposed Project. The alternative crosses several irrigation canals, minor roadways, Interstate 8, and County Highway S80. Aside from agricultural canals, the alternative crosses no drainage features. Table D.12-17 shows the watercourse crossings for this alternative.

~~Table D.12-17. FTHL Eastern Alternative Watercourse Crossings~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~FTHL-0 to FTHL-4.6~~	
~~Westside Main Canal~~	~~Imperial Valley~~
~~Forget Me Not Drain~~	~~Imperial Valley~~
~~Dixie Drain~~	~~Imperial Valley~~
~~Irrigation Canal~~	~~Imperial Valley~~
~~Westside Main Canal~~	~~Imperial Valley~~

Table D.12-17. FTHL Eastern Alternative Watercourse Crossings

Watercourse	Beneficial Uses	Associated Groundwater Basin
FTHL-0 to FTHL-4.6		
Westside Main Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Forget Me Not Drain	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Dixie Drain	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Irrigation Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Westside Main Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley

This entire alternative is over the Imperial Valley Groundwater Basin (See Sections D.12.1 and D.12.2.1). Specific depth to groundwater is not known in the vicinity of the alternative. However, based on wells in the central part of the Imperial Valley agricultural area near El Centro, groundwater could be as shallow as 10 feet below the ground surface (California Department of Water Resources, 2007).

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, three of these potential impacts do not apply to the FTHL Eastern Alternative. The reasons are that there are no natural watercourses crossed, there are no project features that would contain contaminants, and this alternative has no underground portions that would be subject to stream scour. The specific impacts that do not apply are: Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Degradation of water quality through construction-related erosion and sedimentation could occur in this alternative. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity. The nearby waters that could be affected are all agricultural canals (Table D.12-1), although the eventual disposition of natural drainage is to the New River. Since this is an agricultural area regularly disturbed by machinery used in field preparation and cultivation, Impact H-1 for the alternative is similar to the background level of activity existing in this area. Therefore, the additional increment of sediment production from the project is low.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, and WQ-APM-14 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is less than significant. This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); and (5) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14). WQ-APM-14 involves developing a SWPPP for construction-related erosion control.

With incorporation of the APMs, Impact H-1 will be less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Degradation of water quality through construction-related material spills is a potential for all watercourses along this alternative (Table D.12-17). Spilled material such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could enter local agricultural canals, or groundwater (Imperial Valley Groundwater Basin). Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. ~~However, t~~There are no natural drainages on this alternative. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Spill control and clean-up will also be addressed by the required SWPPP. With incorporation of these APMs, Impact H-2 would be less than significant (Class III).

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Excavation for tower foundations in shallow groundwater could contaminate groundwater through accidental material spills. This impact is possible for the reason that groundwater in this agricultural area could be shallower than the tower excavation depth of 40 feet. APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 address this issue by requiring that contaminants are kept away from groundwater where pos-

sible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. The SWPPP will also address this issue through spill prevention, containment and clean-up procedures. Therefore, Impact H-3 is less than significant (Class III).

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II~~I~~)

Dewatering or blasting for tower construction in the Imperial Valley Groundwater Basin could result in a local and temporary drawdown of groundwater levels. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for groundwater overdraft. Any water supply wells that may be in the area and that would be affected would be identified as required under APM WQ-APM-6, which required identification of these well and provision of alternate water supplies (e.g., via temporary water tanks or trucks) during any temporary period of depletion that may occur. ~~Since local water supplies will not be interrupted or will be temporarily replaced, Impact H-4 is less than significant (Class III).~~ Nonetheless, reduced water flows in wells and springs as a result of blasting for tower foundations would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measure H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of tower foundations and access roads would result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas. In the case of the alternative, there may be small local increases in runoff, but the total area affected would be very small in comparison to the total watershed and in comparison to irrigation. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III).

D.12.14.2 SDG&E West of Dunaway Alternative

This 6.1-mile alternative was suggested by SDG&E and approved by the proposed land use developer in the area. It would be an overhead 500 kV line, and would be 2.2 miles longer than the Proposed Project.

Environmental Setting

This alternative is about 1.5 miles west of the Proposed Project and primarily traverses undeveloped desert characteristic of that crossed by the Imperial Valley Link described in Section D.12.1. It departs from the Proposed Project route just after MP 4 and heads northwest for about 1.5 miles, turns north for 2 to 3 miles, and then turns east again to intersect with the Proposed Project just before MP 6.1. The last 1,200 feet of this alternative goes through agricultural land that is either fallow or no longer used. Along the way it crosses several watercourses, Interstate 8, a minor roadway, and County Highway S80. Table D.12-18 shows the watercourse crossings for this alternative.

~~Table D.12-18. SDG&E West of Dunaway Alternative Watercourse Crossings~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~WD-0 to WD-6.1~~	
~~Yuha Wash~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~
~~Unnamed~~	~~Imperial Valley~~

This alternative crosses the Imperial Valley Groundwater Basin. Based on a nearby well monitored by the California Department of Water Resources (2007), the depth to groundwater is 50 feet or more.

Table D.12-18. SDG&E West of Dunaway Alternative Watercourse Crossings

Watercourse	Beneficial Uses	Associated Groundwater Basin
WD-0 to WD-6.1		
Yuha Wash	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Unnamed	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, two of these potential impacts do not apply to the SDG&E West of Dunaway Alternative. The reasons are that this alternative has no project features that would contain contaminants and there are no underground portions of the alternative subject to stream scour, except as noted under Operational Impact. The specific impacts that do not apply are: Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the overhead transmission line towers, pull stations, and access roads, would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity. This impact would apply to all watercourses along the route (Table D.12-18).

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is less than significant. This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control. WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts. Therefore, Impact H-1 will be less than significant (Class III) and no mitigation is required.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Degradation of water quality through spills of harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur during construction. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. ~~but t~~the chance for direct surface water contamination is low since watercourses potentially affected are dry most of the time. Groundwater is greater than 50 feet in depth. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Because of the dryness of the area, the depth to groundwater, and the APMs, Impact H-2 is less than significant (Class III).

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for chemical and physical quality. The depth to groundwater in the Imperial Valley Groundwater Basin at this alternative is expected to be below the maximum tower excavation depth of 40 feet. Groundwater is not expected to be found in these excavations. Should local groundwater be encountered,

APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 address this issue as follows: (1) WQ-APM-8 requires proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) WQ-APM-9 ensures that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) WQ-APM-11 calls for determining the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. With incorporation of these APMs, Impact H-3 would be less than significant (Class III).

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II~~I~~)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for groundwater overdraft.

Impact H-4, related to depletion of groundwater supplies through dewatering or blasting activities, is unlikely in this alternative because there are no nearby groundwater wells, and groundwater is deeper than the expected tower excavation. Prior to construction, WQ-APM-6 requires identification of nearby wells and provision of alternate water supplies during the period of depletion. ~~Impact H-4 is less than significant (Class III).~~ Nonetheless, reduced water flows in wells and springs as a result of blasting for tower foundations would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measure H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction tower foundations and access roads would result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas. In the case of the alternative, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed and the soil is porous. Any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

There are ten watercourses identified for this alternative that could create erosion or scour at towers. These watercourses will be avoided through WQ-APM-2, which requires avoidance or spanning of watercourses where possible. Where avoidance is not possible, WQ-APM-10 requires project features to be protected by burial below the 100-year depth of scour. Damage to adjacent property is possible but would consist of localized erosion that would not likely have an adverse effect due to the lack of improvements in the area. Nevertheless, Impact H-6 would be significant before mitigation. Mitigation Measure H-6a will prevent adjacent impacts and reduce Impact H-6 to less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

D.12.14.3 SDG&E West Main Canal–Huff Road Modification Alternative

This 4.9-mile alternative would follow the IID Westside Main Canal to the east-northeast, and then turn north on Huff Road. Existing IID 92 kV transmission lines are located on the west side of Huff Road along most of this segment; however, where the IID line would turn northwest, this alternative would continue straight along Huff Road to reconnect with the Proposed Project 0.2 miles south of Wheeler Road (MP 15.9). The lengths of the alternative and the proposed routes would be essentially the same; however, this route would avoid direct effects to the Bullfrog Farms and also to the Raceway development.

Environmental Setting

This alternative, about a mile east of the Proposed Project, mainly traverses an agricultural area. Aside from agricultural canals, the alternative crosses no drainage features. The first 800 feet of this alternative is in natural desert. It goes through agricultural fields for another 1,500 feet where it turns to parallel the Westside Main Canal. Approximately 2.8 miles of this alternative is within 400 feet of the Westside Main Canal. This canal is a main irrigation supply canal for the western Imperial Valley. Turning north from the canal at Huff Road, the route travels across agricultural fields until it meets again with the Proposed Project just before MP 16. Table D.12-19 shows the watercourse crossings for this alternative.

~~Table D.12-19. SDG&E West Main Canal–Huff Road Modification Alternative Watercourse Crossings~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~WMC-0 to WMC-4.6~~	
~~Irrigation Canal~~	~~Imperial Valley~~
~~Fillaree Canal~~	~~Imperial Valley~~
~~Irrigation Canal~~	~~Imperial Valley~~
~~Irrigation Canal~~	~~Imperial Valley~~
~~Irrigation Canal~~	~~Imperial Valley~~
~~Fillaree Canal~~	~~Imperial Valley~~

Table D.12-19. SDG&E West Main Canal–Huff Road Modification Alternative Watercourse Crossings

Watercourse	Beneficial Uses	Associated Groundwater Basin
WMC-0 to WMC-4.6		
Irrigation Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Fillaree Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Irrigation Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Irrigation Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Irrigation Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley
Fillaree Canal	Trib. to New River; FRSH, REC1, REC2, WARM, WILD, RARE	Imperial Valley

This entire alternative is above the Imperial Valley Groundwater Basin (See Sections D.12.1 and D.12.2.1). Specific depth to groundwater is not known for the area of the alternative, but based on wells in the central part of the Imperial Valley agricultural area, near Imperial, groundwater could be less than 10 feet below the ground surface (California Department of Water Resources, 2007).

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, three of these potential impacts do not apply to the SDG&E West Main Canal–Huff Road Modification Alternative. The reasons are that there are no natural watercourse crossings, there are no project features that would contain contaminants, and this alternative has no underground portions subject to stream scour. The specific impacts that do not apply are: Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the overhead transmission line towers and access roads would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity. This impact would apply to all watercourses along the alternative. Construction-related water quality degradation through erosion or sedimentation could affect the man-made canals listed in Table D.12-19. Impacts would be less than significant. This would be accomplished through APMS: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Using erosion control best management practices (WQ-APM-4); (3) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (4) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control.

Through incorporation of these APMs, construction-related water quality degradation through erosion and sedimentation (Impact H-1) is less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Degradation of water quality through construction-related material spills is a potential for the canals listed in Table D.12-19. Spilled contaminants such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid and lubricating grease could enter the Imperial Valley Groundwater Basin. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. The potential for adverse effects from this impact is low due to APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, WQ-APM-14, and the required SWPPP, address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Because of the dryness of the area, the depth to groundwater, and the APMs, Impact H-2 is less than significant (Class III).

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Excavation for towers could reach groundwater in this alternative. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for chemical and physical quality. Should local groundwater be encountered, APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 address this issue as follows: (1) WQ-APM-8 requires proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) WQ-APM-9 ensures that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) WQ-APM-11 calls for determining the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. With incorporation of these APMs, Impact H-3 would be less than significant (Class III).

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class III)

Dewatering or blasting for tower construction in the Imperial Valley Groundwater Basins could result in a local and temporary drawdown of groundwater levels. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for groundwater overdraft. Any water supply wells that may be in the area and that would be affected would be identified as per WQ-APM-6, and alternate water supplies provided during any temporary period of depletion that could occur. ~~Since local water supplies will not be interrupted or alternate water supplies provided, Impact H-4 is less than significant (Class III).~~ Nonetheless, reduced water flows in wells and springs as a result of blasting for tower foundations would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measure H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction tower foundations and access roads would result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas. In the case of this alternative, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III).

D.12.15 Anza-Borrego Link Alternatives Impacts and Mitigation Measures

Two alternatives are considered in the Anza-Borrego Link: the Partial Underground 230 kV ABDSP SR78 to S2 Alternative (also considered with an All Underground Option) and the Overhead 500 kV ABDSP within Existing ROW Alternative.

D.12.15.1 Partial Underground 230 kV ABDSP SR78 to S2 Alternative

This alternative was developed by the EIR/EIS team and would include installation of a double-circuit bundled 230 kV line (as opposed to an overhead 500 kV with the Proposed Project) that would be installed underground in SR78 through ABDSP. The proposed Central East Substation would not be constructed with this alternative and approximately 2 miles of transmission line (one mile of 500 kV and one mile of 230 kV) to and from that substation would be eliminated. Instead a new 500 kV/230 kV substation would be constructed adjacent to the existing IID San Felipe Substation to accommodate the new transmission line.

There is also an All Underground Option considered for this alternative, in which the entire length of the 230 kV transmission line between the San Felipe Substation and the connection to the Proposed Project would be installed underground in Highways SR78 and S2.

Environmental Setting

The alignment for this alternative varies from a few hundred feet to approximately 3.5 miles from the Proposed Project alignment. From MP SR-0 to SR-25, this alternative is in the desert with terrain and climate similar to the region described for the Anza-Borrego Link in Sections D.12.1 and D.12.2. At approximately MP SR-25, the alternative is in a transition region with terrain and climate more similar to the area described for the Central Link (Sections D.12.1 and D.12.2). There are a few residences along the route from SR-0 to SR-6. The remainder of the route is in wilderness.

There are at least 45 major watercourse crossings of this alternative, many with multiple individual crossings, as noted in Table D.12-22. Of the crossings in Table D.12-4, 37 are over the underground portion of the alternative. Several of these crossings, for example Sunset Wash, Mine Wash, Chuckwalla Wash and San Felipe Creek, are large washes. San Felipe Creek, near the crossing at SR-23, has a watershed area of 89 square miles. In addition to the crossings, the alternative runs adjacent to a series of desert washes from SR-0 to SR-1, and adjacent to San Felipe Creek from SR- 13.3 to SR-14.2, SR-18.1 to SR-19.3, SR-20.8 to SR-21.8, and SR-23 to SR-24.4. This last adjacent portion is in a narrow (Sentenac) canyon where flows are confined and the roadway bed, mostly immediately adjacent to the stream bed, shows evidence of having been eroded in the past. San Felipe Creek has generated discharges in excess of 6,000 cubic feet per second (cfs) in Sentenac Canyon (USGS, 2007).

~~Table D.12-20. Partial Underground 230 kV ABDSP SR78 to S2 Alternative Watercourse Crossings~~

~~MP~~	~~Watercourse~~	~~Associated Groundwater Basin~~
~~SR-0 to SR-3.5~~	~~Unnamed (Multiple Braided Desert Washes)~~	~~Borrego Valley~~
~~SR-6.5 to SR-8.3~~	~~Unnamed (Multiple Braided Desert Washes)~~	~~Borrego Valley~~
~~SR-8.4~~	~~Unnamed (Desert Wash)~~	~~Borrego Valley~~
~~SR-8.5 to SR-10~~	~~Unnamed (Multiple Braided Desert Washes)~~	~~Borrego Valley~~
~~SR-12~~	~~Tributary San Felipe Creek (Desert Wash)~~	~~Borrego Valley~~
~~SR-12.5~~	~~Tributary San Felipe Creek (Large Braided Desert Wash)~~	~~Borrego Valley~~
~~SR-12.9~~	~~Tributary San Felipe Creek (Braided Desert Wash)~~	~~Borrego Valley~~
~~SR-13~~	~~Sunset Wash (Large Braided Desert Wash)~~	~~Borrego Valley~~
~~SR-13.25~~	~~Tributary San Felipe Creek (Braided Desert Wash)~~	~~Borrego Valley~~
~~SR-13.4~~	~~Tributary San Felipe Creek (Desert Wash)~~	~~Borrego Valley~~

Table D.12-20. Partial Underground 230 kV ABDSP SR78 to S2 Alternative Watercourse Crossings

MP	Watercourse	Associated Groundwater Basin
SR-14.2	Quartz Vein Wash (Desert Wash)	Yaqui Well Area
SR-14.3	Tributary San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-14.4	Tributary San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-14.5	Tributary San Felipe Creek (Braided Desert Wash)	Yaqui Well Area
SR-14.8 to SR-15	Pinyon Wash (Large Braided Desert Wash)	Yaqui Well Area
SR-15.5	Tributary San Felipe Creek (Braided Desert Wash)	Yaqui Well Area
SR-15.8	Tributary San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-16.2 to SR-18.1	Mine Wash and Chuckwalla Wash (Multiple Braided Desert Wash)	Yaqui Well Area
SR-18.9	Tributary San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-19.3	Tributary San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-19.8	Tributary San Felipe Creek (Braided Desert Wash)	Yaqui Well Area
SR-20.3 to SR-20.6	Tributary San Felipe Creek (Multiple Braided Desert Washes)	Yaqui Well Area
SR-20.8	Tributary San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-21.1	Tributary San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-21.2	Tributary San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-21.6	Plum Canyon (Multiple Braided Desert Washes)	Yaqui Well Area
SR-23	San Felipe Creek (Desert Wash)	Yaqui Well Area[1]
SR-25.9	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-26.1	Unnamed (Mountain Wash)	San Felipe Valley[2]
SR-26.2	Unnamed (Mountain Wash)	San Felipe Valley[2]
SR-26.5	Unnamed (Desert Wash)	San Felipe Valley[2]
SR-26.8	Unnamed (Desert Wash)	San Felipe Valley[2]
SR-27.2	Unnamed (Desert Wash)	San Felipe Valley[2]
SR-27.5	Unnamed (Desert Wash)	San Felipe Valley[2]
SR-28.8	Unnamed[3] (Desert Wash)	San Felipe Valley[2]
SR-28.9	Unnamed[3] (Desert Wash)	San Felipe Valley[2]
SR-29	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-29.5	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-29.8	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-29.9	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-30.1	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-30.7	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-37.2	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-37.5	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-37.9	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]

1 Crossing is outside the indicated groundwater basin but over a stream that drains to the groundwater basin.
2 This alternative runs along the edge of the San Felipe Valley groundwater basin.
3 The power line is overhead for this watercourse crossing. The power line is underground for all other crossings.

Table D.12-20. Partial Underground 230 kV ABDSP SR78 to S2 Alternative Watercourse Crossings

MP	Beneficial Uses	Watercourse	Associated Groundwater Basin
SR-0 to SR-3.5	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Multiple Braided Desert Washes)	Borrego Valley
SR-6.5 to SR-8.3	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Multiple Braided Desert Washes)	Borrego Valley
SR-8.4	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Desert Wash)	Borrego Valley
SR-8.5 to SR-10	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Multiple Braided Desert Washes)	Borrego Valley
SR-12	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Borrego Valley
SR-12.5	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Large Braided Desert Wash)	Borrego Valley
SR-12.9	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Braided Desert Wash)	Borrego Valley
SR-13	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Sunset Wash (Large Braided Desert Wash)	Borrego Valley
SR-13.25	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Braided Desert Wash)	Borrego Valley
SR-13.4	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Borrego Valley
SR-14.2	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Quartz Vein Wash (Desert Wash)	Yaqui Well Area
SR-14.3	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-14.4	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-14.5	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Braided Desert Wash)	Yaqui Well Area
SR-14.8 to SR-15	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Pinyon Wash (Large Braided Desert Wash)	Yaqui Well Area
SR-15.5	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Braided Desert Wash)	Yaqui Well Area
SR-15.8	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-16.2 to SR-18.1	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Mine Wash and Chuckwalla Wash (Multiple Braided Desert Wash)	Yaqui Well Area
SR-18.9	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-19.3	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-19.8	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Braided Desert Wash)	Yaqui Well Area
SR-20.3 to SR-20.6	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Multiple Braided Desert Washes)	Yaqui Well Area
SR-20.8	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-21.1	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-21.2	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Trib. San Felipe Creek (Desert Wash)	Yaqui Well Area
SR-21.6	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Plum Canyon (Multiple Braided Desert Washes)	Yaqui Well Area
SR-23	AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	San Felipe Creek (Desert Wash)	Yaqui Well Area[1]
SR-25.9	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]

Table D.12-20. Partial Underground 230 kV ABDSP SR78 to S2 Alternative Watercourse Crossings

MP	Beneficial Uses	Watercourse	Associated Groundwater Basin
SR-26.1	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Mountain Wash)	San Felipe Valley[2]
SR-26.2	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Mountain Wash)	San Felipe Valley[2]
SR-26.5	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Desert Wash)	San Felipe Valley[2]
SR-26.8	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Desert Wash)	San Felipe Valley[2]
SR-27.2	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Desert Wash)	San Felipe Valley[2]
SR-27.5	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed (Desert Wash)	San Felipe Valley[2]
SR-28.8	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Desert Wash)	San Felipe Valley[2]
SR-28.9	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Desert Wash)	San Felipe Valley[2]
SR-29	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-29.5	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-29.8	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-29.9	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-30.1	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-30.7	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-37.2	Trib. to San Felipe Creek; AGR, FRSH, GWR, REC1, REC2, WARM, WILD, RARE	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-37.5	Trib. to Buena Vista Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]
SR-37.9	Trib. to Buena Vista Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, COLD, WILD	Unnamed[3] (Mountain Wash)	San Felipe Valley[2]

1 Crossing is outside the indicated groundwater basin but over a stream that drains to the groundwater basin.
2 This alternative runs along the edge of the San Felipe Valley groundwater basin.
3 The power line is overhead for this watercourse crossing. The power line is underground for all other crossings.

This alternative crosses the Borrego Valley Groundwater Basin from SR-0 to SR-14, the Yaqui Well Area Groundwater Basin from SR-14 to SR-22, and borders the San Felipe Valley Groundwater Basin from SR-25 to SR-38. The Borrego Valley and Yaqui Well Area groundwater basins are described in Section D.12.2.2. Depth to groundwater in the San Felipe Valley is generally 22 to 88 feet below the surface and is declining. The water is suitable for domestic use (California Department of Water Resources, 2007).

Environmental Impacts and Mitigation Measures

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the alternative would require excavation and grading for roads and trenches. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity. This impact would apply to all watercourses along the alternative. Affected watercourses for this alternative are listed in Table D.12-20. These streams are typically dry, and will likely be so during construction, resulting in little potential for sediment to be disturbed directly into surface water. APMs WQ-APM-1, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 will ensure that the impact will be less than significant.

This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (3) Using erosion control best management practices (WQ-APM-4); (4) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control. WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

Incorporation of these APMs would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, used during construction could wash into and pollute surface waters or groundwater, and affect the watercourses listed in Table D.12-20, as well as the Borrego Valley, Yaqui Well Area, and San Felipe Valley groundwater basins. Adverse effects are expected to be minimal due to the normally dry nature of the streams and the depth to groundwater. Groundwater is typically greater than 110 feet in the Borrego Valley Groundwater Basin. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents The depth to groundwater is unknown in the Yaqui Well Area Groundwater Basin. Depth to groundwater in the San Felipe Valley Groundwater Basin could be as shallow as 22 feet.

APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires

compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Because of the dryness of the area, the depth to groundwater, and the APMs, Impact H-2 is less than significant (Class III).

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Impact H-3, groundwater contamination during construction, is a potential but unlikely impact to the Borrego Valley, Yaqui Well Area, and San Felipe Valley groundwater basins. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for chemical and physical quality. Most of this alternative will be trenched at a typical depth of 6 feet, which is well above known groundwater. There are relatively few watercourse crossings in the overhead portion of this alternative (see Table D.12-20), and most of these are in hilly areas where encountering groundwater is unlikely. APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 will ensure avoidance of groundwater contamination and proper disposal of contaminated groundwater. Should local groundwater be encountered, APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 address this issue as follows: (1) WQ-APM-8 requires proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) WQ-APM-9 ensures that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) WQ-APM-11 calls for determining the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. With incorporation of these APMs, Impact H-3 would be less than significant (Class III).

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II~~I~~)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for groundwater overdraft. As described for Impact H-3, it is not likely that groundwater will be encountered by this alternative, making Impact H-4 unlikely. WQ-APM-6 ensures alternate water supplies during the period of depletion in the unlikely event groundwater wells are affected. ~~Impact H-4 is less than significant (Class III).~~ Nonetheless, reduced water flows in wells and springs as a result of blasting for tower foundations would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measure H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of substations, tower foundations and access roads would result in additional runoff through creation of impervious areas and compaction of soils. Any local increases in runoff would be small, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact on structures or habitat. There will be no new impervious areas associated with the underground portion of this alternative. Impervious areas associated with the towers in the overhead portion are minimal. Impact H-5 is less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Towers that may be located in or near watercourses crossed by the overhead portion of this alternative (see Table D.12-20) are potentially susceptible to scour during flood events, and these towers can induce scour to adjacent property. Because of the hilly terrain in the overhead portion of this alternative, it is likely that most if not all watercourses will be spanned by the power line rather than having towers placed at canyon bottoms. APMs WQ-APM-2 and WQ-APM-10, call for avoidance of stream channels where possible, and burial of tower foundations below the scour depth. However, even with APMs in place the impact would be significant. Implementation of Mitigation Measure H-6a will protect adjacent property and reduce Impact H-6 to a level that is less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment at the San Felipe Substation could be released accidentally and contaminate local surface water or groundwater. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. However, WQ-APM-13 does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project operation, making Impact H-7 significant. With Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (See Table D.12-20). This could lead to a substantial impact along this alternative, particularly along San Felipe Creek at Sentenac Canyon, and in some of the crossings of larger washes between MPs SR-12 and SR-25. In Sentenac Canyon and possibly other areas where the line would be adjacent to San Felipe Creek (See Environmental Setting above), the Impact H-8 risk would take the form of potential lateral erosion that could expose the transmission line.

Whereas through proper engineering the risk of exposure of underground lines (Impact H-8) can be reduced to a less than significant level, it should be recognized that with multiple stream crossings, the overall risk of an exposure somewhere along the line is greater than for just one stream, even if the protection for all is 100-year. The risk of Impact H-8 is therefore substantially greater for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative than for the Proposed Project or any of the other alternatives. Placement of the power line within the roadway would in this case provide some protection,

but this desert roadway typically crosses watercourses at-grade or over relatively small culverts which could be overtopped or bypassed by large floods. Overtopped roadways can be stripped of pavement and scoured by large floods. The roadway in Sentenac Canyon has some erosion protection in the form of riprap, but it is not known whether this riprap is adequate to protect against scour by large floods. Mitigation Measure H-8a (Bury power line below 100-year scour depth) would protect the line from 100-year scour at each stream. Nevertheless, impacts would be significant before mitigation. Provided Mitigation Measure H-8a is properly implemented to protect against lateral erosion in areas such as Sentenac Canyon, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

San Felipe Substation

A substantially expanded San Felipe Substation would be constructed adjacent to the existing small substation to allow conversion of the 500 kV transmission line to the 230 kV lines that can be installed underground through the Park.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

The San Felipe Substation would be on relative flat land and would require a minimal amount of grading, but because of the size of the area (at least 40 acres) the potential for construction-related erosion will be substantial during a rainfall event. Construction of substation and associated transmission lines, pull stations, and access roads would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams at the site. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would address many of the water quality and erosion impacts associated with construction of this alternative. This would be accomplished through: (1) minimizing disturbance to drainage channels (WQ-APM-1); (2) avoiding or spanning watercourses with project structures (WQ-APM-2); (3) marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) using erosion control best management practices (WQ-APM-4); (5) construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

However, even with these APMs the impact would be significant. With the implementation of additional mitigation measures, the impacts can be reduced. Mitigation Measure H-1a requires grading to occur during the dry season to avoid water quality impacts, and erosion and sediment control BMPs to be in place prior to the onset of seasonal rains. With implementation of Mitigation Measure H-1a, Impact H-1 would be reduced to less than significant (Class II).

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a Prepare Substation Grading and Drainage Plan; construct during the dry season.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could be accidentally discharged into water resources during construction. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Because of the proximity of this substation to the Park, even with these APMS, Impact H-2 would be significant. With the additional planning and oversight required by Mitigation Measures H-1a and H-2d the impact would be mitigated to less than significant (Class II).

Mitigation Measure for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

H-1a Prepare Substation Grading and Drainage Plan; construct during the dry season.

H-2d Maintain vehicles and equipment.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II)

Local increases in runoff could be substantial due to the size of the substation, resulting in a potential for local offsite erosion which would occur in the area immediately adjacent to the substation. Mitigation Measure H-5a is required to reduce this impact to less than significant (Class II).

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream

H-5a Install substation runoff control.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and battery acid from new electrical equipment at the substation could be released accidentally and contaminate local surface water or groundwater. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. Such a release is unlikely since substations do not normally contain hazardous or potentially contaminating materials exposed to stormwater. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. However, WQ-APM-13 does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project opera-

tion. Therefore, absent mitigation, Impact H-7 would be significant. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

All Underground Option

The Partial Underground ABDSP SR78 to S2 Alternative would require construction within SR78 and S2, with other construction segments overhead along those two roadways. The All Underground Option would include underground construction along the entire extent of the alternative, eliminating the overhead portions. The impact analysis presented for the Partial Underground ABDSP SR78 to S2 Alternative, which defines impacts and mitigation measures for construction within roadways, would also apply to this option.

D.12.15.2 Overhead 500 kV ABDSP within Existing ROW Alternative

The alternative would differ from the proposed route in the Grapevine Canyon area (in the Angelina Springs Cultural District), in the vicinity of Tamarisk Grove Campground, and in a few areas east of Tamarisk Grove Campground along SR78. The alternative would remain within the existing SDG&E 69 kV ROW/easement. This alternative would eliminate towers within State-designated Wilderness. Undergrounding of the existing 69 kV and 92 kV lines would not occur with this alternative; those lines would be underbuilt on Delta lattice towers.

The *East of Tamarisk Grove Campground 150-Foot Option* was suggested by SDG&E in which the alternative would follow the Proposed Project route in the 150-foot proposed alignment, and not the existing ROW, between the eastern Park boundary (MP 60.9) to Tamarisk Grove Campground (MP 74.8) near the SR78/Highway S3 intersection. Similar to the Proposed Project described in Section B.2.2, SDG&E would underbuild and underground the existing 92 kV and 69 kV lines.

Environmental Setting

The alternative would follow the same route as the proposed route, except in the Grapevine Canyon area in the Angelina Springs Cultural District where the alternative would remain within the existing SDG&E 69 kV ROW/easement and towers would not be located on State-designated Wilderness. The existing 69 kV and 92 kV lines would be installed as an underbuild on 500 kV Delta lattice towers. From a water resources standpoint, the environmental setting for this alternative is the same as for the Proposed Project Anza Borrego Link. See Section D.12.2.2.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, two of these potential impacts do not apply to the Overhead 500 kV ABDSP within Existing ROW Alternative. The specific impacts that do not apply are that there are no project facilities with contaminants in this alternative and there are no underground portions of this alternative. The specific impacts that do not apply are: Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the overhead transmission line towers, pull stations, and access roads would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Downstream beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for suspended solids, total dissolved solids, sediment and turbidity. This impact would apply to all watercourses along the alternative.

Streams crossed in this alternative are dry except during infrequent periods of brief rainfall of sufficient intensity to produce runoff. Construction in or near a dry streambed is not likely to cause direct degradation of water quality because these streams will be dry during construction. Further, APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is minimal and less than significant (Class III). This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control. WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

Incorporation of the APMs for Impact H-1 would ensure that impacts are less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Impact H-2, water quality degradation through accidental spills or disposal of potentially harmful materials used during construction, such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, is possible for the watercourses listed in Table D.12-20 and the Borrego Valley and Yaqui Well Area groundwater basins. Groundwater or downstream surface water beneficial uses could be adversely affected through violation of RWQCB water quality objectives for toxicity and chemical constituents. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Because of the dryness of the area, the depth to groundwater, and the APMs, Impact H-2 is less than significant (Class III).

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for chemical and physical quality. Impact H-3, groundwater contamination during construction, is a potential impact to the Borrego Valley and Yaqui Well Area basins at the locations indicated in Table D.12-20. Tower excavation depth will be less than 30 feet, which is known to be less than the depth to groundwater in the Borrego Valley Groundwater Basin, but water depth information is not available for the Yaqui Well Area Basin. It is assumed that there is a potential for groundwater to be encountered by project excavation in this basin, but based on depth in nearby groundwater basins, this potential is considered to be small.

Should local groundwater be encountered, APMs WQ-APM-8, WQ-APM-9, and WQ-APM-11 address this issue as follows: (1) WQ-APM-8 requires proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) WQ-APM-9 ensures that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) WQ-APM-11 calls for determining the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. With incorporation of these APMs, Impact H-3 would be less than significant (Class III).

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II~~I~~)

Dewatering or blasting for tower construction in ABDSP could result in a local and temporary drawdown of groundwater levels. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for groundwater overdraft. Any water supply wells that may be in the area and that would be affected would be identified as required under APM WQ-APM-6, which required identification of these well and provision of alternate water supplies during any temporary period of depletion that may occur. ~~Since local water supplies will not be interrupted or will be temporarily replaced, Impact H-4 is less than significant (Class III).~~ Nonetheless, reduced water flows in wells and springs as a result of blasting for tower foundations would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less than significant level through implementation of Mitigation Measure H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Impervious areas associated with tower construction are minimal, and insignificant with regard to the overall watershed, resulting in no significant increase in runoff or flooding. Impacts would be less than significant.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Although specific tower locations are not yet know, Impact H-6 generally applies. APM WQ-APM-2 calls for avoidance of stream channels where possible. APM WQ-APM-10 requires project features to be buried below the 100-year depth of scour. Since the facilities involved in this link are power line towers, burial of the foundations to a depth sufficient to protect from scour is feasible and effective as protection for the tower. However, migration of stream channels and bank scour may pose a significant impact to towers. APMs WQ-APM-2 and WQ-AMP-10 do not provide sufficient detail on what considerations need to be taken into account. Even with the implementation of APMs, impacts would be significant. Therefore, Mitigation Measure H-6a will be implemented to ensure impacts will be less than significant (Class II).

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

East of Tamarisk Grove Option

This option would involve construction of the same configuration of the Proposed Project in the area east of Tamarisk Grove Campground. Those impacts are defined in Section D.12.6.

D.12.16 Central Link Alternatives Impacts and Mitigation Measures

Four Central Link Alternatives are considered in this section: the Santa Ysabel Existing ROW Alternative, the Santa Ysabel Partial Underground Alternative, the Santa Ysabel SR79 All Underground Alternative, and the Mesa Grande Alternative.

D.12.16.1 Santa Ysabel Existing ROW Alternative

This alternative would follow an existing 69 kV transmission line ROW on the west side of SR79 in the northern half and east of SR79, along the toe of the hill slope in the southern portion of the alternative. This route would pass east of the existing Santa Ysabel Substation and continue to follow the existing 69 kV line south of SR78 until it rejoins the proposed corridor.

Environmental Setting

This alternative is one to two miles east of the Proposed Project. It moves south from the intersection of State Highway 79 and State Highway 76 along the valley with Carrista Creek and State Highway 79. Carrista Creek flows north to Lake Henshaw. The route goes over a ridge and then follows a tributary of Santa Ysabel Creek south to Santa Ysabel Creek. It continues south after that to about 3,400 feet south of State Highway 78 where it turns southwest and reconnects to the Proposed Project route between MP 109 and 110. Climate and topography are characteristic of the Central Link described in Section D.12.1 and D.12.2.3. Table D.12-21 shows 9 surface water crossings, including one of Santa Ysabel Creek. This alternative crosses no designated groundwater basin.

~~Table D.12-21. Santa Ysabel Existing ROW Alternative Watercourse Crossings~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~SYR-0 to SYR-9~~	
~~Unnamed~~	~~Warner Valley[1]~~
~~Unnamed~~	~~Warner Valley[1]~~
~~Unnamed~~	~~Santa Maria Valley[1]~~
~~Unnamed~~	~~Santa Maria Valley[1]~~
~~Unnamed~~	~~Santa Maria Valley[1]~~
~~Unnamed~~	~~Santa Maria Valley[1]~~
~~Santa Ysabel Creek~~	~~Santa Maria Valley[1]~~
~~Unnamed~~	~~Santa Maria Valley[1]~~
~~Unnamed~~	~~Santa Maria Valley[1]~~

~~1 Crossing is outside the indicated groundwater basin but over a stream that drains to the groundwater basin.~~

Table D.12-21. Santa Ysabel Existing ROW Alternative Watercourse Crossings

Watercourse	Beneficial Uses	Associated Groundwater Basin
SYR-0 to SYR-9		
Unnamed	Trib. to Carrista Creek MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley*
Unnamed	Trib. to Carrista Creek MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Warner Valley*
Unnamed	Trib. to Carrista Creek MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Santa Maria Valley*
Unnamed	Trib. to Carrista Creek MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Santa Maria Valley*
Unnamed	Trib. to Carrista Creek MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Santa Maria Valley*
Unnamed	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*
Santa Ysabel Creek	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*
Unnamed	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*
Unnamed	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Maria Valley*

*Crossing is outside the indicated groundwater basin but over a stream that drains to the groundwater basin.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, four of these potential impacts do not apply to the Santa Ysabel Existing ROW Alternative. The reasons are that this alternative crosses no groundwater basin, has no project facilities that would contain contaminants, and has no underground portions, except as described under Impact H-6. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the overhead transmission line towers, pull stations, and access roads, would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. This impact would apply to all watercourses along the route. Table D.12-21 lists the streams that are potentially at risk of water quality degradation due to construction-induced erosion and sedimentation (Impact H-1) in the Santa Ysabel Existing ROW Alternative. All of the watercourses listed in Table D.12-21, including Santa Ysabel Creek at this location, are relatively small with relatively low potential for encountering surface flows except during the winter months.

Streams crossed by the alternative are dry except during infrequent periods of brief rainfall of sufficient intensity to produce runoff. APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is less than significant (Class III). This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

As a result of incorporating these APMs, Impact H-1 would be less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials used during construction such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could wash into and pollute surface waters or groundwater (Impact H-2) within this alternative. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This impact would apply to the watercourses listed in Table D.12-21. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. The potential for groundwater impacts is low because there is no designated groundwater basin at this alternative. Impact H-2 is less than significant (Class III).

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Impact H-5, Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream, is less than significant (Class III). The impervious area created by the new towers and foundations is minimal.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Towers that may be placed in or near the watercourses listed in Table D.12-21 are potentially subject to scour and erosion impacts (Impact H-6). APM WQ-APM-2 calls for avoidance of stream channels where possible. APM WQ-APM-10 requires project features to be buried below the 100-year depth of scour. Since the facilities involved in this link are power line towers, burial of the foundations to a depth sufficient to protect from scour is feasible and effective as protection for the tower. However, migration of stream channels and bank scour may pose a significant impact on towers. Even with the implementation of APMs, impacts would be significant. Therefore, Mitigation Measure H-6a will be implemented to ensure impacts will be less than significant (Class II).

Mitigation Measure for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

D.12.16.2 Santa Ysabel Partial Underground Alternative

This 230 kV alternative would begin at MP 105.5 where the proposed route would join Mesa Grande Road at the base of the hills at the western side of the Santa Ysabel Valley. The alternative would transition underground at the southern side of Mesa Grande Road and would travel underground in Mesa Grande Road, SR79 and then, south of SR78, following property lines for approximately one mile to rejoin the proposed route at approximately MP 109.5 where it would transition overhead. The route would be 0.7 miles longer than the proposed route.

Environmental Setting

This alternative is less than one mile east of the Proposed Project. The terrain is undeveloped river valley with vegetation and climate typical of the Central Link as described in Section D.12.1 and D.12.2.3. The route for this alternative is underground and under roadway for almost its entire length. It departs from the Proposed Project route between MPs 109 and 110 and heads in a northeasterly direction. The MP convention for this alternative is in the opposite direction from that of the Proposed Project. It will be under a new dirt road for about a mile where it will transition north under an existing road. It travels under that road to State Route 79 which it continues to travel north under to Mesa Grande Road. At Mesa Grande it turns west and follows the road past MP 106 of the Proposed Project where it turns from the road to reconnect with the Proposed Project route. Table D.12-22 shows seven identified surface water crossings, including one of Santa Ysabel Creek. With the exception of Santa Ysabel Creek, all are minor drainageways tributary to Santa Ysabel Creek. This alternative crosses no designated groundwater basin.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, five of these potential impacts do not apply to the Santa Ysabel Partial Underground Alternative. The reasons are that there is no groundwater basin crossed by this alternative, the alternative creates no new impervious areas, there are no aboveground features, and there are no project facilities with contaminants. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater.

~~Table D.12-22. Santa Ysabel Partial Underground Alternative Watercourse Crossings~~

~~MP~~	~~Watercourse~~	~~Associated Groundwater Basin~~
~~SYPU-4.8~~	~~Unnamed~~	~~None~~
~~SYPU-3.8~~	~~Unnamed~~	~~None~~
~~SYPU-3.3~~	~~Unnamed~~	~~None~~
~~SYPU-3.2~~	~~Santa Ysabel Creek~~	~~None~~
~~SYPU-2.9~~	~~Unnamed~~	~~None~~
~~SYPU-2.7~~	~~Unnamed~~	~~None~~
~~SYPU-0.8~~	~~Unnamed~~	~~None~~

Table D.12-22. Santa Ysabel Partial Underground Alternative Watercourse Crossings

Milepost	Beneficial Uses	Watercourse	Associated Groundwater Basin
SYPU-4.8	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-3.8	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-3.3	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-3.2	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Ysabel Creek	None
SYPU-2.9	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-2.7	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-0.8	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None

Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-7, accidental releases of contaminants from project facilities could degrade water quality

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of trenches, pull stations, and access roads, would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. This impact would apply to all watercourses along the alternative. Affected watercourses are listed in Table D.12-22. These are all small streams and are typically dry except during winter months, although Santa Ysabel Creek and the watercourse at SYPU-3.8 could contain some dry season flows.

Construction in or near a dry streambed is not likely to cause direct erosion-related degradation of water quality because these streams will be dry during the time of construction. Further, APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is minimal and less than significant (Class III). This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

By incorporating these APMs, Impact H-1 would be less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Spills of materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could occur during construction and contaminate water resources. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Impact H-2 in this alternative is applicable to the watercourses listed in Table D.12-22. There are no groundwater basins. These streams primarily will be dry during the time of construction. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Because of the dryness of the area and incorporation of these APMs, Impact H-2 is less than significant (Class III).

Operational Impacts

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property applies to all of the crossings listed in Table D.12-22. Since these watercourses are small and the scour potential low, the typical burial depth of 6 feet should be adequate. The roadway may provide some protection for the crossings at SYPU-2.7, SYPU-2.9, SYPU-3.2 (Santa Ysabel Creek), SYPU-3.3 and SYPU-3.8 (the crossing at SYPU-4.8 is not in a roadway). However, impacts could still be significant. Mitigation Measure H-8a will ensure this impact is less than significant (Class II) for this alternative.

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

D.12.16.3 Santa Ysabel SR79 All Underground Alternative

This alternative would diverge from the Proposed Project at MP 100, just south of the crossing of SR78. It would start as an overhead 230 kV line, which would then transition to an underground route on private property, west of SR79. It would be underground along existing dirt roads and within hay fields and SR79 through the Santa Ysabel Valley, rejoining the proposed route south of SR78.

Environmental Setting

This alternative is one to two miles west of the Proposed Project. The terrain is undeveloped river valley with vegetation and climate typical of the Central Link. This alternative is the same as the Santa Ysabel Partial Underground Alternative to Mesa Grande Road. Instead of turning at Mesa Grande Road it continues along State Route 79. It turns from the roadway a little over a mile from the intersection of Mesa Grande Road and parallels the roadway several hundred feet to the west. Still underground it travels in this fashion until it meets again with the Proposed Project route near MP 100. At times the underground portion of the route that is not under a roadway is in Carrista Creek. Table D.12-23 shows the 18 watercourse crossings identified for this alternative. These include two crossings of Carrista Creek, and one of Santa Ysabel Creek. All of the unnamed watercourses designated with SYAU MPs in Table D.12-23 are minor tributaries to Carrista Creek, which drains to Lake Henshaw. The other unnamed watercourses (designated by SYPU in Table D.12-23) are minor tributaries to Santa Ysabel Creek.

~~Table D.12-23. Santa Ysabel All Underground Alternative Watercourse Crossings~~

~~MP~~	~~Watercourse~~	~~Associated Groundwater Basin~~
~~SYAU-4.9~~	~~Unnamed~~	~~None~~
~~SYAU-4.3~~	~~Carrista Creek~~	~~None~~
~~SYAU-3.9~~	~~Unnamed~~	~~None~~
~~SYAU-3.5~~	~~Carrista Creek~~	~~None~~
~~SYAU-3.3~~	~~Unnamed~~	~~None~~
~~SYAU-2.8~~	~~Unnamed~~	~~None~~
~~SYAU-1.4~~	~~Unnamed~~	~~None~~
~~SYAU-1.1~~	~~Unnamed~~	~~None~~
~~SYAU-0.8~~	~~Unnamed~~	~~None~~
~~SYAU-0.4~~	~~Unnamed~~	~~None~~
~~SYAU-0.2~~	~~Unnamed~~	~~None~~
~~SYAU-0.4~~	~~Unnamed~~	~~None~~
~~SYPU-3.8~~	~~Unnamed~~	~~None~~
~~SYPU-3.3~~	~~Unnamed~~	~~None~~
~~SYPU-3.2~~	~~Santa Ysabel Creek~~	~~None~~
~~SYPU-2.9~~	~~Unnamed~~	~~None~~
~~SYPU-2.7~~	~~Unnamed~~	~~None~~
~~SYPU-0.8~~	~~Unnamed~~	~~None~~

Table D.12-23. Santa Ysabel All Underground Alternative Watercourse Crossings

Milepost	Beneficial Uses	Watercourse	Associated Groundwater Basin
SYAU-4.9	Trib. to Carrista Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Unnamed	None
SYAU-4.3	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Carrista Creek	None
SYAU-3.9	Trib. to Carrista Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Unnamed	None
SYAU-3.5	MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Carrista Creek	None
SYAU-3.3	Trib. to Carrista Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Unnamed	None

Table D.12-23. Santa Ysabel All Underground Alternative Watercourse Crossings

Milepost	Beneficial Uses	Watercourse	Associated Groundwater Basin
SYAU-2.8	Trib. to Carrista Creek; MUN, AGR, IND, FRSH, POW, REC1, REC2, WARM, WILD	Unnamed	None
SYAU-1.4	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYAU-1.1	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYAU-0.8	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYAU-0.4	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYAU-0.2	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYAU-0.4	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-3.8	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-3.3	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-3.2	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Santa Ysabel Creek	None
SYPU-2.9	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-2.7	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None
SYPU-0.8	Trib. to Santa Ysabel Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	Unnamed	None

This alternative parallels Carrista Creek from approximately MP SYAU 2.5 to SYAU 5.2. This creek exhibits a substantial capacity for bank erosion in this area, with the creek bed ranging from approximately 40 feet wide to nearly 300 feet wide. The two Carrista Creek crossings listed in Table D.12-23 are actually locations where the power line would pass beneath the eroded Carrista Creek bed without actually crossing the creek. The crossing at SYAU-4.3 is nearly 800 feet long.

The unnamed crossing at SYAU-3.9 is actually a location where the power line would run in or very close to the bed of an unnamed tributary to Carrista Creek for a distance of 1,500 feet.

This alternative crosses no designated groundwater basin.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, five of these potential impacts do not apply to the Santa Ysabel All Underground Alternative. The reasons are that there is no groundwater basin crossed by this alternative, the alternative creates no new impervious areas, there are no aboveground features, and there are no project facilities with contaminants. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-7, accidental releases of contaminants from project facilities could degrade water quality.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Watercourses affected by this alternative are listed in Table D.12-23. These are all small and, with the possible exception of Carrista Creek, are typically dry except during winter months.

Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. At the Carrista Creek crossing at SYAU-4.3, and the unnamed crossing at SYAU-3.9, the power line trench could substantially disturb as much as 2,300 feet of creek bed. In the case of the unnamed crossing, up to 800 feet of disturbance would occur and this could remove well-established vegetation along the creek bed and banks. Although under APM WQ-APM-5 construction activities would occur during periods of low flow and under a site-specific mitigation and restoration plan prepared, the amount of vegetation removal and stream disturbance is such that large runoff events during the winter subsequent to construction would likely disturb and dislodge large amounts of sediment that would be transported downstream. Consequently, Impact H-1 would be a significant impact (Class II) for this alternative before mitigation.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 address some of the concerns regard construction-related water quality degradation through erosion and sedimentation (Impact H-1). Where feasible, these APMs would lessen adverse effect by (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

However, based on the amount and location of disturbance at the Carrista Creek crossing at SYAU-4.3 and the unnamed crossing at SYAU-3.9, this impact would remain significant unless an alternative method of construction which avoids these impacts is found. Mitigation Measure H-1j will ensure these areas are not disturbed and will reduce Impact H-1 to less than significant (Class II) by avoiding direct impacts to the creek itself.

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1j **Construct Santa Ysabel SR79 All Underground Alternative using directional drill where adjacent to or beneath Carrista Creek and other water crossings with greater than 500 feet of disturbance.** ~~Directional~~ If technically feasible and if it would not conflict with other potentially sensitive resources or land uses, directional drilling or "jack and bore" shall be used to construct those portions of the Santa Ysabel SR79 All Underground Alternative where the alternative will be adjacent to or beneath Carrista Creek and other crossings. A site-specific SWPPP shall be prepared for this operation which addresses the potential for accidental release of drilling mud and defines steps for immediate cessation of drilling in the event of a release.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could be accidentally discharged into water resources during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. In this alternative, Impact H-2 applies to the watercourses listed in Table D.12-23. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Although there will be extensive disturbance to stream beds as described under Impact H-1 above, the construction will be done during dry periods and the proposed APMs and the required SWPPP are sufficient to ensure Impact H-2 for this alternative is less than significant (Class III).

Operational Impacts

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8 applies to the 18 crossings listed in Table D.12-23. With the exception of Carrista Creek, an unnamed drainage, and Santa Ysabel Creek, these watercourses are small with low scour potential, and the typical burial depth of 6 feet should be adequate.

Although Mitigation Measure H-8a will ensure this impact is less than significant with mitigation (Class II) for this alternative, it should be noted that implementation of H-8a may involve substantial remediation in the form of additional burial depth. Carrista Creek appears to be actively eroding, and the proximity of this alternative route to the creek between SYAU 2.5 and SYAU 5.2 may mean that this entire reach needs to be buried below the maximum depth of scour of Carrista Creek, measured from the bed of Carrista Creek, whether the power line is in the creek or not. This extra burial depth of the power line could be required for parts of the line that are not currently in the creek bed to prevent future impacts from lateral erosion. The same is true for the 1,500-foot reach where the line runs along the unnamed tributary at SYAU-3.9 (this 1,500-foot reach is within the reach defined by SYAU 2.5 to SYAU 5.2). With implementation of Mitigation Measure H-1j (Construct Santa Ysabel SR79 All Underground Alternative using directional drill where adjacent to or beneath Carrista Creek and other water crossings with greater than 500 feet of disturbance) the crossings of the wider waterways would occur using directional drilling, which would result in deeper burial and greater protection of both the transmission line and the waterway.

Mitigation Measure for Impact H-8: : Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

D.12.16.4 SDG&E Mesa Grande Alternative

This alternative to a one-mile portion of the proposed overhead 230 kV route was proposed by the land-owner and also by SDG&E in order to reduce the visibility of the overhead line west of Mesa Grande Road. It would diverge from the proposed route at MP 102.2, and rejoin it before MP 104.

Environmental Setting

This alternative is less than one mile west of the Proposed Project. The area is hilly with grasslands and scattered trees. Climate is typical of the Central Link. There are no watercourses identified for this alternative and no groundwater basins.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, five of these potential impacts do not apply to the SDG&E Mesa Grande Alternative. The reasons are that there are no groundwater basins crossed by this alternative, there are no watercourse identified for this alternative, there are no project facilities with contaminants, and, aside from tower foundation discussed in Impact H-6, there are no underground portions of this alternative. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the overhead transmission line towers and access roads would require excavation and grading. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. While there are no watercourses identified for this short alternative, project APMs would apply. APMs WQ-APM-4 and WQ-APM-14 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) less than significant (Class III). This would be accomplished through: (1) Using erosion control best management practices (WQ-APM-4); (2) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14). WQ-APM-14 includes developing a SWPPP for construction-related erosion control.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, could be accidentally discharged into, and contaminate, surface waters during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This impact is considered unlikely for the reason there are no watercourses identified for this alternative. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue

of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Because of the dryness of the area, the depth to groundwater, and the APMs, Impact H-2 is less than significant (Class III).

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Impact H-5 applies to the construction of towers, but the increase in impervious areas associated with these is negligible. Therefore, impact H-5 is less than significant (Class III).

D.12.17 Inland Valley Link Alternatives Impacts and Mitigation Measures

Four alternatives are considered within the Inland Valley Link: the CNF Existing 69 kV Route Alternative, the Oak Hollow Road Underground Alternative, the San Vicente Road Transition Station Alternative, and the Chuck Wagon Road Alternative.

D.12.17.1 CNF Existing 69 kV Route Alternative

This 0.5-mile alternative segment would start at MP 111.3 where the proposed 230 kV and existing 69 kV transmission lines would be routed west for 0.5 miles and then south for approximately 0.5 miles to avoid Cleveland National Forest (CNF). The alternative would remain in the existing 69 kV ROW heading southwest through Cleveland National Forest to rejoin the proposed route at MP 111.8. This alternative would be 0.5 miles shorter than the Proposed Project and the existing 69 kV transmission line would not need to be relocated out of the existing ROW.

Environmental Setting

This alternative is in a hilly area in a natural condition with topography and climate typical of the Inland Valley Link (See Sections D.12.1 and D.12.2.4). There is one crossing of a minor mountain drainage course in this alternative. There is no identified groundwater basin at this alternative.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, four of these potential impacts do not apply to the CNF Existing 69 kV Route Alternative. The reasons are that there are no groundwater basins crossed by this alternative, there are no project facilities with contaminants, and, aside from tower foundation discussed in Impact H-6, there are no underground portions of this alternative. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of the overhead transmission line towers, pull stations, and access roads would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would address water quality issues associated with erosion and sedimentation for this Alternative. These APMs have the goal of: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control. WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

However, this alternative would be in National Forest, with high-value water resources, which is set aside and intended to remain as a natural area. Without mitigation, Impact H-1 would be significant. Mitigation Measure H-1k and H-1l are required to ensure this impact is reduced to less than significant (Class II). Mitigation Measure H-1k requires compliance with Forest Service conditions as a condition of construction. Mitigation Measure H-1l requires a site specific (as opposed to general project) SWPPP for construction on Forest Service land. The full text of all mitigation measures is in Appendix 12.

Mitigation Measure for impacts on Forest Service property. Applies to all impacts identified on Forest Service property

H-1k **Comply with Forest Service conditions.** Where the power line crosses Forest Service property, the following conditions, or others defined by the Forest Service, based on consultation, shall be complied with:

- The Forest Service reserves the right, after notice and opportunity for comment, to modify project conditions, if necessary, to respond to any Final Biological Opinion issued for this project by the United States Fish and Wildlife Service, NOAA Fisheries, or any Certification or permit issued for this Project by the State Water Resources Control Board or Army Corps of Engineers.
- Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the California Public Utilities Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill cleanup for project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup is needed.

- At a minimum, the plan must require the Licensee to (1) maintain in the project area, or at an alternative location approved by the Forest Service, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts.
- The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, and approved construction and staging areas, as identified in a Road and Traffic Management Plan developed by the Licensee. The Forest Service reserves the right to close any and all such routes where damage (impacts beyond the expected and approved disturbance) is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use. The Forest Service agrees to provide notice to the Licensee and the Public Utilities Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.
- During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Public Utilities Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the project.

  The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include:

  1. A description of the actual site conditions
  2. Detailed descriptions, design drawings, and specific topographic locations of all control measures
  3. Measures to divert runoff away from disturbed land surfaces
  4. Measures to collect and filter runoff over disturbed land surfaces
  5. Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources
  6. Measures to dissipate energy and prevent erosion
  7. A monitoring and maintenance schedule.

  Upon Commission approval, the Licensee shall implement the plan.
- Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Public Utilities Commission not previously addressed in the Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a cost

recovery agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.

- ~~Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Commission not previously addressed in the Public Utilities Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a cost recovery agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.~~

- The Licensee shall within 6 months after license issuance file with the Public Utilities Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect groundwater related surface water and other groundwater-dependent resources.

- Within one year of license issuance the Licensee shall file with the Public Utilities Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources.

H-1l **Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment Control Plan.** A site-specific sediment control plan and SWPPP shall be prepared for construction within the National Forest. These plans shall identify and characterize potentially affected water resources and provide site-specific remedies to minimize project-related sedimentation, as well as provide post-construction remediation and monitoring details. The sediment control plan shall include construction in the dry period, as well as construction by helicopter in areas where terrain is steep and the potential consequences of sedimentation severe. These plans shall be submitted to the Forest Service and CPUC for review and approval prior to construction.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could be accidentally discharged into water resources during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Impact H-2 applies to the construction area according to the general description provided in Section D.12.5.4. One small mountain watercourse would be the receiving water for any accidental spills that may occur. There are no groundwater basins. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt

clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. However, impacts could still be significant. This area is National Forest and intended to remain as a natural area, such that additional mitigation is required to ensure this impact is less than significant (Class II). Mitigation Measures H-1k, which contains these conditions, and H-2d will ensure that Impact H-1 is less than significant (Class II) for this alternative.

Mitigation Measure for impacts on Forest Service property. Applies to all impacts identified on Forest Service property

H-1k Comply with Forest Service conditions.

H-2d Maintain vehicles and equipment.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Impact H-5 applies to the construction of towers, but the increase in impervious areas associated with these is negligible. This impact will be less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

There is one stream crossing in this alternative. Because of the steep terrain on both sides of the stream, it is considered unlikely a tower will be placed in or near the stream bed. This is a small stream, and a typical tower foundation, buried below the 100-year depth of scour should be adequately protected from scour. APM WQ-APM-2 calls for avoidance of stream channels where possible. APM WQ-APM-10 requires project features to be buried below the 100-year depth of scour. Since the facilities involved in this link are power line towers, burial of the foundations to a depth sufficient to protect from scour is feasible and effective as protection for the tower and adjacent properties provided that consideration is given for possible future lateral erosion, which is not addressed in APMs WQ-APM-2 and WQ-AMP-10. Therefore, Mitigation Measure H-1k (because this is National Forest) and H-6a will be implemented to ensure impacts will be less than significant (Class II).

Mitigation Measures for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-1k Comply with Forest Service conditions.

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

D.12.17.2 Oak Hollow Road Underground Alternative

The purpose of this alternative would be to extend the proposed underground to the east of Mount Gower County Open Space Preserve so the line would be underground through the valley area. The alternative would require 0.6 miles of additional underground 230 kV transmission line, and the existing 69 kV would remain overhead.

Environmental Setting

This 0.5-mile alternative runs very close (within 200 feet) of the Proposed Project at Oak Hollow Road between MPs 116.8 and 117.3. Consequently, the setting for this alternative is identical to the Proposed Project route in this area. Climate and terrain are typical for the Inland Valley Link. There is one (unnamed) stream crossing at Oak Hollow Road where the alternative will be below the paved road. This is a typical ephemeral local watercourse in this area. There is no identified groundwater basin in this area.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, five of these potential impacts do not apply to the Oak Hollow Road Underground Alternative. The reasons are that there is no groundwater basin crossed by this alternative, the alternative creates no new impervious areas, there are no aboveground features, and there are no project facilities with contaminants. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-7, accidental releases of contaminants from project facilities could degrade water quality.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the transmission line underground would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. There is one minor watercourse that could be affected by these impacts.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 apply to the alternative and would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is less than significant (Class III). This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control. WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts. As a result of the proposed APMs, Impact H-1 is Class III for this alternative.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

For this alternative, there is one minor surface watercourse which could be affected by these impacts, which could include accidental contamination through spills of such materials as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. There are no groundwater basins. This stream will likely be dry during the time of construction. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Because of the dryness of the area, the depth to groundwater, and the APMs, Impact H-2 is less than significant (Class III).

Operational Impacts

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8 could affect the power line at the single watercourse crossing in this alternative. This crossing is in a roadway which should provide protection. However impacts could still be significant without mitigation. Mitigation Measure H-8a will ensure this impact is less than significant (Class II) for this alternative.

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

D.12.17.3 San Vicente Transition Alternative

The alternative would move the transition structure from its proposed location along San Vicente Road (MP 121.9) approximately 0.3 miles west to MP 122.2. The underground line would follow San Vicente Road within a 60-foot ROW for an additional 2,100 feet and would cross under an existing Creelman–Los Coches 69 kV transmission line, before it would turn north and would travel through open space for approximately 200 feet to the overhead transition point.

Environmental Setting

The setting for this 0.1-mile alternative is identical to the Proposed Project route in this area. The alternative would move the San Vicente transition structure from its proposed location along San Vicente Road (MP 121.9) approximately 0.3 miles west to MP 122.2. The underground line for the Proposed Project would continue along the proposed corridor as planned for the Proposed Project, but the transition poles would be located north of San Vicente Road and adjacent to a dirt road. The proposed and alternative transition locations would both be within Barnett Ranch Open Space Preserve.

Climate and terrain are typical for the Inland Valley Link. The area is hilly and there are no stream crossings, but there is one stream very close to the transition and which would be crossed by the Proposed Project. There is no identified groundwater basin in this area.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, six of these potential impacts do not apply to the San Vicente Transition Alternative. The reasons are that there is no groundwater basin crossed by this alternative, the alternative creates no new impervious areas, there are no aboveground features, there are no project facilities with contaminants, and there are no watercourses crossed. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the underground transmission line extension would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into the local stream. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 apply to this alternative and would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) are less than significant (Class III). This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control. WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts. As a result of the proposed APMs, Impact H-2 is less than significant (Class III) for this alternative.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

There is a potential for accidental spill and water contamination by materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids to enter the stream near this alternative. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. APMs WQ-APM-8, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. With APMs and the required SWPPP, Impact H-2 is less than significant (Class III).

D.12.17.4 Chuck Wagon Road Alternative

This alternative would diverge from the proposed route in San Vicente Boulevard, turning south in Chuck Wagon Road approximately 0.2 miles east of the proposed transition point at MP 121.7. It would continue south for approximately 1.6 miles before passing under the existing Creelman–Los Coches 69 kV transmission line ROW. At this point, the route would transition to overhead and turn west for approximately 1.2 miles to rejoin the proposed route at MP 125.6.

Environmental Setting

Climate and terrain for the Chuck Wagon Road Alternative are typical for the Inland Valley Link. The alternative route travels under Chuck Wagon Road from San Vicente Road for almost two miles. There it transitions to an overhead line and continues in a southwesterly direction for about 1.5 miles until it reconnects to the Proposed Project between MPs 125 and 126. There are three stream crossings as indicated in Table D.12-24. This alternative crosses no designated groundwater basin though it crosses streams that drain to the San Diego River Valley basin.

Table D.12-24. Chuck Wagon Road Alternative Watercourse Crossings

Watercourse	Associated Groundwater Basin
CRW-0 to CRW-1.9	
Unnamed	San Diego River Valley[1]
Unnamed	San Diego River Valley[1]
Unnamed	San Diego River Valley[1]
Unnamed	San Diego River Valley[1]
CRW-1.9 to CRW-3.2	
Unnamed	San Diego River Valley[1]
Unnamed	San Diego River Valley[1]
Unnamed	San Diego River Valley[1]
Daney Canyon	San Diego River Valley[1]
Unnamed	San Diego River Valley[1]

1 Crossing is outside the indicated groundwater basin but over a stream that drains to the groundwater basin.

Table D.12-24. Chuck Wagon Road Alternative Watercourse Crossings

Watercourse	Beneficial Uses	Associated Groundwater Basin
CRW-0 to CRW-1.9		
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
CRW-1.9 to CRW-3.2		
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Daney Canyon	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*
Unnamed	Trib. to San Vicente Creek; MUN, AGR, IND, PROC, REC1, REC2, WARM, WILD	San Diego River Valley*

*Crossing is outside the indicated groundwater basin but over a stream that drains to the groundwater basin.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, three of these potential impacts do not apply to the Chuck Wagon Road Alternative. The reasons are that there is no groundwater basin crossed by this alternative and there are no project facilities with contaminants. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; and Impact H-7, accidental releases of contaminants from project facilities could degrade water quality.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Affected watercourses for this alternative are listed in Table D.12-24. These are all small Central Link streams and are typically dry except during winter months, although Santa Ysabel Creek and the watercourse at SYPU-3.8 could contain some dry season flows.

Construction of the overhead and underground transmission line, pull stations, and access roads would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) would be less than significant (Class III). This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at

periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

As a result of the incorporation of these APMs, Impact H-1 is less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Streams crossed by this alternative are of a size that they will likely be dry during the time of construction. Nevertheless, there is a potential for accidental spill and water contamination by materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. APMs WQ-APM-8, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. With APMs and the required SWPPP, Impact H-2 is less than significant (Class III).

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

The amount of impervious area created through tower construction in this alternative is negligible, resulting in negligible potential for increase in runoff. Impact H-5 is less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

There are three watercourses identified for the overhead portion of this alternative that could create erosion or scour at towers. APMs WQ-APM-2 and WQ-APM-10, call for avoidance of stream channels where possible, and burial of tower foundations below the scour depth. Even with implementation of the APMs, impacts would be significant. Implementation of Mitigation Measure H-6a will prevent adjacent impacts and reduce Impact H-6 to less than significant (Class II).

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8 applies to the four crossings listed between CRW-0 and CRW-1.9 in Table D.12-24. These are all small drainageway crossings in a roadway that should provide adequate protection, such that the risk of Impact H-8 is small. However, without mitigation this impact should still be considered potentially significant. Mitigation Measure H-8a will ensure this impact is less than significant (Class II) for this alternative.

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

D.12.18 Coastal Link Alternatives Impacts and Mitigation Measures

Four alternatives are considered within the Coastal Link: the Pomerado Road to Miramar Area North Alternative, the Los Peñasquitos Canyon Preserve and Mercy Road Alternative, the Black Mountain to Park Village Road Underground Alternative, and the Coastal Link System Upgrade Alternative.

D.12.18.1 Pomerado Road to Miramar Area North

This alternative would be underground with the exception of the east and west ends where the line is overhead within existing SDG&E transmission ROWs. This alternative would exit the Sycamore Substation at MCAS Miramar overhead westerly within an existing ROW toward Pomerado Road. The line would transition to underground beneath Pomerado Road in the vicinity of Legacy Road, then continuing underground in Miramar Road, Kearny Villa Road, Black Mountain Road, Activity Road, Camino Ruiz, Miralani Drive, Arjons Drive, Trade Place, Camino Santa Fe, Carroll Road/Carroll Canyon Road and Scranton Road. At the western end, the line would transition to overhead and would be located within the existing 230 kV ROW heading northward into the Peñasquitos Substation.

Environmental Setting

This Alternative is mostly underground beneath urban streets in Pomerado Road, Miramar Road, Kearny Villa Road, Black Mountain Road, Activity Road, Camino Ruiz, Miralani Drive, Arjons Drive, Trade Place, Trade Street, Camino Santa Fe, Carroll Canyon Road, and to Scranton Road within the San Diego urban area. At this location the line would transition to overhead and would be located within the existing 230 kV ROW heading northward into the Peñasquitos Substation. About 20% of this 12-mile alternative would be overhead in an existing power utility corridor. The Poway Creek crossing is in the Los Peñasquitos Canyon preserve. The climate, regional hydrology and terrain for this alternative are typical of the Coastal Link described in Section D.12-1. Watercourses crossed are listed in Table D.12-25. This alternative crosses no designated groundwater basin.

~~Table D.12-25. Pomerado Road to Miramar Area North Alternative Watercourse Crossings~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~PM-0 to PM-10.5~~	
~~Second San Diego Aqueduct~~	~~None~~
~~Unnamed~~	~~None~~
~~Unnamed~~	~~None~~
~~PM-10.5 to PM-13~~	
~~Unnamed~~	~~None~~
~~Poway Creek~~	~~None~~
~~Unnamed~~	~~None~~

Table D.12-25. Pomerado Road to Miramar Area North Alternative Watercourse Crossings

Watercourse	Beneficial Uses	Associated Groundwater Basin
PM-0 to PM-10.5		
Second San Diego Aqueduct	Trib. to Lower Otay Reservoir; MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD	None
Unnamed	Trib. to Los Peñasquitos Canyon; AGR, IND, REC2, BIOL, WARM, WILD	None
Unnamed	Trib. to Los Peñasquitos Canyon; AGR, IND, REC2, BIOL, WARM, WILD	None
PM-10.5 to PM-13		
Unnamed	Trib. to Los Peñasquitos Canyon; AGR, IND, REC2, BIOL, WARM, WILD	None
Poway Creek	AGR, IND, REC2, BIOL, WARM, WILD	None
Unnamed	Trib. to Los Peñasquitos Canyon; AGR, IND, REC2, BIOL, WARM, WILD	None

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, three of these potential impacts do not apply to the Pomerado Road to Miramar Area North Alternative. The reasons are that there is no groundwater basin crossed by this alternative and there are no project facilities with contaminants. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; and Impact H-7, accidental releases of contaminants from project facilities could degrade water quality.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. Table D.12-25 lists the streams that are potentially at risk of water quality degradation due to construction-induced erosion and sedimentation in the Pomerado Road to Miramar Area North Alternative. Streams in this alternative have the potential for stream flow to be present during the time of construction, particularly Poway Creek in the Los Peñasquitos Canyon preserve. Although Impact H-1 is typically less than significant (Class III) as a result of incorporation of APMs and the SWPPP, a portion of this alternative (specifically the crossing of Poway Creek) would be within the Los Peñasquitos Canyon Preserve. Although the amount of earth moving associated with this alternative in the Preserve is not substantial, the Preserve is considered sufficiently sensitive to require additional mitigation. Impact H-1 would be significant without mitigation. Implementation of Mitigation Measure H-1b will reduce impacts to less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

H-1b **Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego.**

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Impact H-2 applies in a similar manner as described for the Proposed Project in Section D.12.9 for the watercourses listed in Table D.12-25, and in particular to the Los Peñasquitos Canyon Preserve. Because of the sensitivity of the Preserve, Impact H-2 requires Mitigation Measures H-1b and H-2d to ensure impacts are less than significant (Class II).

Mitigation Measure for Impact H-2: Construction activity could degrade water quality due to erosion and sedimentation

H-1b Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego.

H-2d Maintain vehicles and equipment.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

The amount of impervious area created through tower construction in this alternative is negligible, resulting in negligible potential for increase in runoff. Impact H-5 is less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

There are three watercourses identified for the overhead portion of this alternative that could create erosion or scour at towers as described in Table D.12-25. APMs require that these watercourses be avoided if possible or that project features be protected from scour should avoidance be impractical. However, Impact H-6 would still be significant before mitigation. Mitigation Measure H-6a will prevent adjacent impacts and reduce Impact H-6 to less than significant (Class II).

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8 applies to the three underground crossings listed in Table D.12-25. These crossings are all in urban roadways designed such that the risk of Impact H-8 is very small. However, impacts before mitigation could still be significant. Mitigation Measure H-8a will ensure this impact is less than significant (Class II) for this alternative.

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

D.12.18.2 Los Peñasquitos Canyon Preserve–Mercy Road Alternative

This alternative route would bypass the Chicarita Substation and connect to existing ROW along Scripps Poway Parkway in the vicinity of Ivy Hill Drive. The line would then transition to underground and follow Scripps Poway Parkway/Mercy Road, Mercy Road, Black Mountain Road, and finally Park Village Drive, where the alternative route would rejoin the proposed route.

Environmental Setting

The alignment for this alternative would be underground. The alternative route is in a suburban street for its entire length. This alternative crosses one unnamed drainageway, in an urban street, and Poway Creek within the Los Peñasquitos Canyon Preserve. The Poway Creek crossing would be at the location of an existing bridge on Black Mountain Road. The climate, regional hydrology and terrain for this alternative are typical of the Coastal Link described in Section D.12-1. This alternative crosses no designated groundwater basin.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, five of these potential impacts do not apply to the Los Peñasquitos Canyon Preserve–Mercy Road Alternative. The reasons are that there is no groundwater basin crossed by this alternative, the alternative creates no new impervious areas, there are no towers, and there are no project facilities with contaminants. The specific impacts that do not apply are: Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and Impact H-7, accidental releases of contaminants from project facilities could degrade water quality.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Two streams, particularly Poway Creek in the Los Peñasquitos Canyon Preserve, could be as risk of water quality degradation due to construction-induced erosion and sedimentation. Degradation of water quality could be prevented by APMs and the SWPPP, but any excavation that may occur within Poway Creek, for instance for trenching, should that be the crossing method used, could significantly affect the Peñasquitos Canyon Preserve and associated beneficial uses.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is minimal and less than significant (Class III). This would be accomplished through: (1) Minimizing disturbance to drainage channels (WQ-APM-1); (2) Avoiding or spanning watercourses with project structures (WQ-APM-2); (3) Marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) Using erosion control best management practices (WQ-APM-4); (5) Construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) Situating access roads away from stream channels and mini-

mizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

Because of the sensitive nature of Poway Creek and the Los Peñasquitos Canyon Preserve, even with incorporation of these APMs, Impact H-1 would be significant. By avoiding the creek, as established in Mitigation Measure H-1m, Impact H-1 would be less than significant (Class II).

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Los Peñasquitos Canyon Preserve–Mercy Road Alternative only)

H-1m **Poway Creek crossing to be overhead in the existing bridge or directionally drilled rather than trenched.** The Poway Creek crossing in the Los Peñasquitos Canyon Preserve–Mercy Road Alternative shall be attached to the bridge, bored under the stream by jack and bore methods, or directionally drilled rather than trenched across the stream. Because contamination of surface water by boring fluid seepage (known as frac-out) could result, the Applicant shall provide the CPUC and the City of San Diego with a Frac-out Contingency Plan (Plan) prior to the commencement of directional boring activities near water crossings. The Plan shall outline the procedures that would be put in place to minimize the potential for frac-out impacts into the stream channel, and shall document the containment and cleanup equipment that would be present for use at staging areas and construction sites. Specific requirements shall include requiring drilling/boring crews to strictly monitor drilling fluid pressures, no nighttime boring unless absolutely required, retaining containment equipment onsite, monitoring water quality downstream of the site, and immediately stopping work if a seep into a stream is detected. All bentonite seeps into sensitive habitat shall be immediately reported to the project's resource coordinator, the CPUC, the City of San Diego, and the appropriate resource agencies. In addition, the Plan shall outline the clean-up and reporting measures that would be utilized in the event of a frac-out. The Plan shall be approved by CPUC and the City of San Diego prior to the onset of directional drilling or boring activities.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could be accidentally discharged into water resources during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Impact H-2 applies to the watercourses listed in Table D.12-26. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt

~~Table D.12-26. Los Peñasquitos Canyon Preserve–Mercy Road Alternative Watercourse Crossings~~

~~Watercourse~~	~~Associated Groundwater Basin~~
~~LPCM-0 to LPCM-3.6~~	
~~Unnamed~~	~~None~~
~~Poway Creek~~	~~None~~

clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Because of the sensitivity of the Poway Creek and the Preserve, even with these APMS, Impact H-2 would be significant. With the additional planning and oversight required by Mitigation Measures H-1b and H-2d, the impact would be mitigated to less than significant (Class II).

Table D.12-26. Los Peñasquitos Canyon Preserve–Mercy Road Alternative Watercourse Crossings

Watercourse	Beneficial Uses	Associated Groundwater Basin
LPCM-0 to LPCM-3.6		
Unnamed	Trib. to Los Peñasquitos Canyon; AGR, IND, REC2, BIOL, WARM, WILD	None
Poway Creek	AGR, IND, REC2, BIOL, WARM, WILD	None

Mitigation Measure for Impact H-2: Construction activity could degrade water quality due to erosion and sedimentation

H-1b **Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego.**

H-2d **Maintain vehicles and equipment.**

Operational Impacts

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8 may potentially apply to the two crossings listed in Table D.12-26. The unnamed crossings will be in an urban roadway, resulting in low risk of exposure. It is not known how the crossing of Poway Creek will be affected (see Impact H-1). Mitigation Measure H-8a will ensure Impact H-8 is less than significant (Class II) for this alternative.

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a **Bury power line below 100-year scour depth.**

D.12.18.3 Black Mountain to Park Village Road Underground Alternative

This alternative would deviate from the Proposed Project alignment where the route approaches Black Mountain Road. Under this alternative, the line would remain underground but would be located underneath Black Mountain Road and would turn west onto Park Village Drive, following the project alignment into the Peñasquitos Substation via the Los Peñasquitos Canyon Preserve.

Environmental Setting

The alignment for this alternative is less than a mile south of the Proposed Project alignment within the coastal link and would be underground. The alternative route is in a suburban street in the San Diego area for its entire length. There are no watercourse crossings for this alternative, and it is not above any groundwater basin.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, six of these potential impacts do not apply to the Black Mountain to Park Village Road Underground Alternative. The reasons are that there is no groundwater basin crossed by this alternative, the alternative creates no new impervious areas, there are no aboveground features, there are no project facilities with contaminants, and there are no watercourses crossed. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; Impact H-7, accidental releases of contaminants from project facilities could degrade water quality; and Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the underground transmission line would require excavation. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. Although there are no stream crossings associated with this alternative, this alternative is within a watershed that drains to Poway Creek and the Los Peñasquitos Canyon Preserve. Storm drains could carry sediment into these waterways.

APMs WQ-APM-4 and WQ-APM-14 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is less than significant (Class III). This would be accomplished by (1) Using erosion control best management practices (WQ-APM-4) and (2) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

There are no watercourses crossed by this alternative. Nevertheless, materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could be spilled during construction and find their way into water resources. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible.

By incorporating these APMs, Impact H-2 is less than significant (Class III) for this alternative.

D.12.18.4 Coastal Link System Upgrade Alternative

The Coastal Link System Upgrade Alternative would be a system modification to install a third 230/69 kV transformer at the existing Sycamore Canyon Substation. Expansion of the Sycamore Canyon Substation would occur within the existing substation easement. Additionally, SDG&E would either (a) install a new 230/138 kV transformer at the existing Encina Substation or (b) upgrade (reconductor) the existing Sycamore Canyon-Chicarita 138 kV circuit using 34 existing wood frame structures.

Environmental Setting

The Coastal Link System Upgrade Alternative would occur on the existing Sycamore Canyon–Pomerado-Poway route, Sycamore Canyon–Chicarita route, and lines between Sycamore Canyon and Mission where existing watercourses are spanned by existing transmission lines and access roads. The climate and hydrology of the area are typical of the Coastal Link. System upgrades consisting of reconductoring and transmission line rebuilding would cross a series of small local drainageways, most of which are between the Mission Substation and the Sycamore Canyon Substation. The reconductored line between the Sycamore Canyon Substation and the Poway Substation would cross Poway Creek. This same line would also cross the Poway Valley Groundwater Basin.

Environmental Impacts and Mitigation Measures

Certain impacts related to Water Resources do not apply to the Coastal Link System Upgrade Alternative. Although part of this alternative crosses the Poway Groundwater Basin, no excavation is proposed for that area. The alternative creates no new impervious areas. The specific impacts that do not apply are: Impact H-3: excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; Impact H-5, creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream; Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion; and, Impact H-8, Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Reconductoring of power lines and construction of towers between Sycamore Canyon and Fanita Junction would require excavation and the use of heavy equipment. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams, including Poway Creek near Poway. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. APMs WQ-APM-4 and WQ-APM-14 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Transmission lines modified by this alternative and existing access roads span watercourses. During construction, materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could be accidentally discharged into water resources. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. By incorporating these APMs, Impact H-2 is less than significant (Class III) for this alternative.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil from new electrical equipment at the Sycamore Canyon and Escondido Substations could be released accidentally and contaminate local surface water or groundwater. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. However, WQ-APM-13 does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project operation. Therefore, Impact H-7 would be significant. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

D.12.19 Top of the World Substation Alternative Impacts and Mitigation Measures

The substation site would be located approximately one mile west of the proposed Central East Substation on Vista Irrigation District land. The transmission line routes into the substation would follow the Proposed Project route to approximately MP 92.7, then the alternative 500 kV route would turn west for 1.1 miles to enter the alternative site. Exiting the substation the line would travel southwest for 400 feet and then west and north-northwest to rejoin the Proposed Project around MP 95.

Environmental Setting

The setting for the Top of the World Substation is very similar to that of the Central East Substation (Section D.12.5.3) but with less topographic relief. Like the Central East Substation, the Top of the World area is mountainous and in a natural condition. The substation would be located at a hilltop at the head of local watersheds in an area where watersheds are not large enough to consolidate into drainage courses that would create a risk of erosion. There are no identified water resources at the site of the substation.

Environmental Impacts and Mitigation Measures

A number of impacts related to Water Resources have been identified for the various alternatives. However, three of these potential impacts do not apply to the Top of the World Substation Alternative. The reasons are that there is no groundwater basin crossed by this alternative and Impact H-6 is similar to Impact H-5 with regard to a substation, and is discussed as part of Impact H-5. The specific impacts that do not apply are: Impact H-3, excavation could degrade groundwater quality in areas of shallow groundwater; Impact H-4, groundwater dewatering for project construction could deplete local water supplies; and Impact H-6, transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

The Top of the World Substation will require a substantial amount of local grading. Because of the size of the area (at least 40 acres) the potential for construction-related erosion will be substantial during a rainfall event, but disturbance of surface flows during construction is unlikely due to its upland location. In addition to the substation itself, this alternative includes approximately 3 miles of transmission line to connect the substation to the Proposed Project.

Construction of substation and associated transmission lines, pull stations, and access roads would require excavation and grading. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into small streams at the site. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity.

APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would address many of the water quality and erosion impacts associated with construction of this alternative. This would be accomplished through: (1) minimizing disturbance to drainage channels (WQ-APM-1); (2) avoiding or spanning watercourses with project structures (WQ-APM-2); (3) marking sensitive areas for avoidance and providing employee training (WQ-APM-3); (4) using erosion control best management practices (WQ-APM-4); (5) construction stream crossing at periods of low flows with site-specific mitigation and restoration plans (WQ-APM-5,); (6) complying with the State of California General Permit for Storm Water Discharge Associated with Construction Activity (WQ-APM-14); and (7) situating access roads away from stream channels and minimizing stream disturbance (WQ-APM-15). WQ-APM-14 involves developing a SWPPP for construction-related erosion control (See Section D.12.3). WQ-APM-15 involves compliance with Corps of Engineers 404 and California Fish and Game Department permitting requirements, which generally require avoidance of streambed disturbance where possible, minimization of unavoidable impacts, and mitigation for unavoidable impacts.

However, even with these APMs the impact would be significant. With the implementation of additional mitigation measures, the impacts can be reduced. Mitigation Measure H-1a requires grading to occur during the dry season to avoid water quality impacts, and erosion and sediment control BMPs to be in place prior to the onset of seasonal rains. With implementation of Mitigation Measure H-1a, Impact H-1 would be reduced to less than significant (Class II).

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a Prepare Substation Grading and Drainage Plan; construct during the dry season.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Materials such as diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could be accidentally discharged into water resources during construction. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Because of the sensitivity of the Poway Creek and the Preserve, even with these APMS, Impact H-2 would be significant. With the additional planning and oversight and equipment maintenance required by Mitigation Measures H-1a and H-2d the impact would be mitigated to less than significant (Class II).

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II)

Local increases in runoff could be substantial, resulting in a potential for local offsite erosion which would occur in the area immediately downstream of the substation. Mitigation Measure H-5a is required to reduce this impact to less than significant (Class II).

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream

H-5a Install substation runoff control.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and battery acid from new electrical equipment at the substation could be released accidentally and contaminate local surface water or groundwater. Such a release is unlikely since substations do not normally contain hazardous or potentially contaminating materials exposed to stormwater. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. However, WQ-APM-13 does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project operation. Therefore, absent mitigation, Impact H-7 would be significant. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

D.12.20 Mitigation Monitoring, Compliance, and Reporting Table

Table D.12-27 presents the mitigation monitoring, compliance and reporting table for Water Resources. Mitigation measures not originating in the water resources analyses do not appear in the table; they appear only in the mitigation monitoring, compliance and reporting table for the section in which they were originally recommended. For a summary of all Proposed Project impacts and their respective mitigation measures, please see the Impact Summary Tables at the end of the Executive Summary.

Sections D.12.11 and D.12.12 recommend mitigation measures for the projects described under Future Transmission System Expansion and Connected Actions/Indirect Effects. Those mitigation measures are presented for consideration by the agencies that will issue permits for construction of the connected and future projects. Because those projects would not be constructed as a result of approval of the Sunrise Powerlink Project, the recommended mitigation measures are not included in this mitigation monitoring table.

Table D.12-27. Mitigation Monitoring Program – Hydrology and Water Resources

MITIGATION MEASURE	H-1a: Prepare Substation Grading and Drainage Plan; construct during the dry season. Prior to construction of new substations, a grading and drainage plan, with SWPPP for construction and post-construction BMPs (as defined by the RWQCB), shall be prepared and submitted to the CPUC and RWQCB for review and approval. All grading for the substation shall occur either during the dry season months, or a settling pond shall be installed on the construction site with sufficient capacity to contain expected runoff during a rainfall event. In addition, for construction during a rainfall event, construction shall cease when rutting occurs in greater than 10% of the road or when rills more than 10 feet in length develop and lead off the road surface in the work area. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains.
Location	All new substations
Monitoring / Reporting Action	Subdivision grading and drainage plan prepared by Applicant and approved by CPUC and RWQCB prior to construction. CPUC construction monitoring to verify compliance.
Effectiveness Criteria	Construction and BMPs in place prior to onset of winter rainy season, and kept operating as long as needed. Mitigation measure is effective if water quality near the project. is maintained.
Responsible Agency	CPUC, BLM, or other responsible/cooperating agencies
Timing	Prior to and during construction.
MITIGATION MEASURE	H-1b: Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego. Construction within the Los Peñasquitos Canyon Preserve (the Preserve) shall occur during the summer (dry season) months. Project construction plans and the SWPPP for project construction shall be submitted to the CPUC, the City of San Diego and the County of San Diego for review and approval prior to construction. The SWPPP shall address erosion and sedimentation control, groundwater dewatering procedures, hazardous materials identification, handling, disposal and emergency spill procedures, and any other best management procedures necessary to prevent contaminants from entering the waters of the preserve, including consideration of using directional drilling. Construction activities within the Preserve shall be open to City and County monitors who shall have the authority to ensure compliance with the approved SWPPP.
Location	Within Los Peñasquitos Canyon Preserve
Monitoring / Reporting Action	Applicant to prepare SWPPP for CPUC, the City of San Diego, and the County of San Diego review and approval prior to construction. CPUC construction monitoring to verify compliance.
Effectiveness Criteria	Approved SWPPP implemented during construction in the dry season.
Responsible Agency	CPUC, the City of San Diego, and the County of San Diego
Timing	Prior to and during construction.

Table D.12-27. Mitigation Monitoring Program – Hydrology and Water Resources

MITIGATION MEASURE	H-1j: Construct Santa Ysabel SR79 All Underground Alternative using directional drill where adjacent to or beneath Carrista Creek and other water crossings with greater than 500 feet of disturbance. ~~Directional~~ If technically feasible and if it would not conflict with other potentially sensitive resources or land uses, directional drilling or "jack and bore"shall be used to construct those portions of the Santa Ysabel SR79 All Underground Alternative where the alternative will be adjacent to or beneath Carrista Creek and other crossings. A site-specific SWPPP shall be prepared for this operation which addresses the potential for accidental release of drilling mud and defines steps for immediate cessation of drilling in the event of a release.
Location	Santa Ysabel SR79 All Underground Alternative where adjacent to or beneath Carrista Creek.
Monitoring / Reporting Action	Applicant to prepare a directional drill plan with associated SWPPP for CPUC approval prior to construction.
Effectiveness Criteria	Directional drilling rather than trenching in the Carrista Creek area.
Responsible Agency	CPUC
Timing	Prior to and during construction.
MITIGATION MEASURE	H-1k: Comply with Forest Service conditions. Where the power line crosses Forest Service property, the following conditions, or others defined by the Forest Service, based on consultation, shall be complied with: • The Forest Service reserves the right, after notice and opportunity for comment, to modify project conditions, if necessary, to respond to any Final Biological Opinion issued for this project by the United States Fish and Wildlife Service, NOAA Fisheries, or any Certification or permit issued for this project by the State Water Resources Control Board or Army Corps of Engineers. • Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the California Public Utilities Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill cleanup for project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup is needed. • At a minimum, the plan must require the Licensee to (1) maintain in the project area, or at an alternative location approved by the Forest Service, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts. • The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, and approved construction and staging areas, as identified in a Road and Traffic Management Plan developed by the Licensee. The Forest Service reserves the right to close any and all such routes where damage (impacts beyond the expected and approved disturbance) is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use. The Forest Service agrees to provide notice to the Licensee and the Public Utilities Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable. • During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Public Utilities Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the project.

Table D.12-27. Mitigation Monitoring Program – Hydrology and Water Resources

	The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: 1. A description of the actual site conditions 2. Detailed descriptions, design drawings, and specific topographic locations of all control measures 3. Measures to divert runoff away from disturbed land surfaces 4. Measures to collect and filter runoff over disturbed land surfaces 5. Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources 6. Measures to dissipate energy and prevent erosion 7. A monitoring and maintenance schedule. Upon Commission approval, the Licensee shall implement the plan. • Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Public Utilities Commission not previously addressed in the Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a cost recovery agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities. ~~• Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Commission not previously addressed in the Public Utilities Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a cost recovery agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.~~ • The Licensee shall within 6 months after license issuance file with the Public Utilities Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect groundwater related surface water and other groundwater-dependent resources. • Within one year of license issuance the Licensee shall file with the Public Utilities Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources.
Location	Forest Service Land
Monitoring / Reporting Action	Applicant to prepare and execute an agreement with the U.S. Forest Service prior to construction. Compliance with the agreement to be verified through monitoring by the Forest service and CPUC during construction.
Effectiveness Criteria	Compliance with the executed agreement.
Responsible Agency	CPUC and U.S. Forest Service
Timing	Prior to and during construction.

Table D.12-27. Mitigation Monitoring Program – Hydrology and Water Resources

MITIGATION MEASURE	H-1l: Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment-Control Plan. A site-specific sediment control plan and SWPPP shall be prepared for construction within the National Forest. These plans shall identify and characterize potentially affected water resources and provide site-specific remedies to minimize project-related sedimentation, as well as provide post-construction remediation and monitoring details. The sediment control plan shall include construction in the dry period, as well as construction by helicopter in areas where terrain is steep and the potential consequences of sedimentation severe. These plans shall be submitted to the Forest Service and CPUC for review and approval prior to construction.
Location	Forest Service Land
Monitoring / Reporting Action	Applicant to prepare a site-specific SWPPP and sediment-control plan to be reviewed and approved by the Forest Service and CPUC prior to construction. CPUC and Forest Service to verify compliance through construction monitoring.
Effectiveness Criteria	Compliance with approved SWPPP and sediment-control plan.
Responsible Agency	CPUC and U.S. Forest Service.
Timing	Prior to and during construction.
MITIGATION MEASURE	H-1m: Poway Creek crossing to be overhead in the existing bridge or directionally drilled rather than trenched. The Poway Creek crossing in the Los Peñasquitos Canyon Preserve–Mercy Road Alternative shall be attached to the bridge, bored under the stream by jack and bore methods, or directionally drilled rather than trenched across the stream. Because contamination of surface water by boring fluid seepage (known as frac-out) could result, the Applicant shall provide the CPUC and the City of San Diego with a Frac-out Contingency Plan (Plan) prior to the commencement of directional boring activities near water crossings. The Plan shall outline the procedures that would be put in place to minimize the potential for frac-out impacts into the stream channel, and shall document the containment and cleanup equipment that would be present for use at staging areas and construction sites. Specific requirements shall include requiring drilling/boring crews to strictly monitor drilling fluid pressures, no nighttime boring unless absolutely required, retaining containment equipment onsite, monitoring water quality downstream of the site, and immediately stopping work if a seep into a stream is detected. All bentonite seeps into sensitive habitat shall be immediately reported to the project's resource coordinator, the CPUC, the City of San Diego, and the appropriate resource agencies. In addition, the Plan shall outline the clean-up and reporting measures that would be utilized in the event of a frac-out. The Plan shall be approved by CPUC and the City of San Diego prior to the onset of directional drilling or boring activities.
Location	Poway Creek crossing in the Los Peñasquitos Canyon Preserve–Mercy Road Alternative
Monitoring / Reporting Action	Applicant to prepare a crossing plan to be reviewed and approved by the CPUC prior to construction. CPUC to verify compliance through construction monitoring.
Effectiveness Criteria	Crossing of the creek by means other than trenching.
Responsible Agency	CPUC
Timing	Prior to and during construction.
MITIGATION MEASURE	H-2d: Maintain vehicles and equipment. All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground. A vehicle and equipment maintenance log shall be updated and provided to CPUC and BLM once monthly during project construction.
Location	Entire project area
Monitoring / Reporting Action	Vehicle equipment and maintenance log updated and provided to CPUC and BLM once monthly during construction
Effectiveness Criteria	Vehicles and equipment do not leak hazardous materials
Responsible Agency	CPUC and BLM

Table D.12-27. Mitigation Monitoring Program – Hydrology and Water Resources

Timing	During construction
MITIGATION MEASURE	H-4b: Avoid blasting where damage to groundwater wells or springs could occur. Blasting shall be managed with a Blasting Plan for each site. The Plan shall include the blasting methods, distance calculations to estimate the area of effect of the blasting, and surveys for wells and springs within the blast influence area (no less than ½ mile from the blasting location). Blasting shall not be allowed where damage to wells or springs could occur according to the Applicant's Blasting Plan, and a rock anchoring or mini-pile system shall be used if these resources could be damaged as a result of blasting or any earth-working method used as an alternative to blasting. Where inadvertent damage to wells within an EPA-designated Sole Source Aquifer occur as a result of earthwork, the Applicant shall compensate the landowner in the form of well repair or replacement, and shall provide the landowner with a water storage tank and sufficient potable water within 48 hours and throughout the interim between damage and repair or replacement. Where inadvertent damage to other wells or springs occurs as a result of earthwork, the Applicant shall compensate the landowner in the form of remedial cash payment, repair, or replacement, as appropriate. The burden of proof of no impact shall rest with the Applicant.
Location	Entire project above designated groundwater basins
Monitoring / Reporting Action	Applicant to prepare a blasting plan, including well survey.
Effectiveness Criteria	Avoidance of blasting where damage to wells or springs could occur, and use of rock anchoring or mini-pile system in its place
Responsible Agency	CPUC
Timing	Prior to and during construction.
MITIGATION MEASURE	H-5a: Install substation runoff control. The pad for new substations shall be constructed with a pervious and/or high-roughness (for example gravel) surface where possible to ensure maximum percolation of rainfall after construction. Detention/retention basins shall be installed to reduce local increases in runoff, particularly on frequent runoff events (up to 10-year frequency). Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimics the natural condition as much as possible. A drainage design hydrologic and hydraulic analysis shall be provided to the CPUC for review and approval prior to the initiation of construction.
Location	New substations.
Monitoring / Reporting Action	Applicant to provide CPUC with a drainage plan for new substations showing compliance with this mitigation measure. CPUC monitor to verify compliance during construction.
Effectiveness Criteria	No increase in runoff from new substations.
Responsible Agency	CPUC
Timing	Prior to and during construction.
MITIGATION MEASURE	H-6a: Scour protection to include avoidance of bank erosion and effects to adjacent property. A determination of towers requiring scour protection under WQ-APM 10 shall be made during the design phase by a registered professional engineer with expertise in river mechanics. All towers within the project shall be reviewed by the river mechanics engineer and the foundations of those towers determined to be subject to scour or lateral movement of a stream channel shall be protected by burial beneath the 100-year scour depth, setbacks from the channel bank, or bank protection as determined by the river mechanics engineer. An evaluation shall also be made regarding the potential for the tower and associated structures to induce erosion onto adjacent property. Should the potential for such erosion occur, the tower location shall be moved to avoid this erosion, or erosion protection (such as rip rap) provided for the adjacent property. This evaluation, and associated scour/erosion protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction of the towers.
Location	Stream crossings entire project.

Table D.12-27. Mitigation Monitoring Program – Hydrology and Water Resources

Monitoring / Reporting Action	Applicant to provide CPUC with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating which towers may reasonably be subject to erosion during the life of the project. The report shall also provide plans for protection from scour, as well as an engineering demonstration that the tower and associated structures will not induce erosion onto adjacent property. CPUC monitor to verify compliance during construction.
Effectiveness Criteria	Towers to withstand scour with no adverse effect on adjacent property.
Responsible Agency	CPUC
Timing	Engineering evaluation, and associated scour/erosion protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction of the towers. Compliance to be ensured during construction.
MITIGATION MEASURE	H-7a: Develop Hazardous Substance Control and Emergency Response Plan for project operation. SDG&E shall prepare and implement a Hazardous Substance Control and Emergency Response Plan for project operation, and a copy shall be kept onsite at substations. This plan shall include definition of an emergency response program to ensure quick and safe cleanup of accidental spills, including prescriptions for hazardous-material handling to reduce the potential for a spill during construction. The plan will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted. These directions and requirements will also be reiterated in the project SWPPP. SDG&E shall submit this Response Plan to the CPUC and BLM for review and approval at least 60 days before construction.
Location	Entire project.
Monitoring / Reporting Action	Applicant to provide CPUC with a Hazardous Substance Control and Emergency Response Plan for project operations, for review and approval, prior to completion of construction. This plan to include monitoring and reporting protocols and responsibilities.
Effectiveness Criteria	Implementation of a Hazardous Substance Control and Emergency Response Plan for project operations.
Responsible Agency	CPUC
Timing	Plan to be submitted for review and approval prior to completion of construction.
MITIGATION MEASURE	H-8a: Bury power line below 100-year scour depth. At locations where the buried power line is to be at or adjacent to a stream bed capable of scour, the power line shall be located below the expected depth of scour from a 100-year flood, or otherwise protected from exposure by scour which, for purposes of this mitigations measure, also includes lateral (streambank) erosion and potential scour associated with flows overtopping or bypassing a culvert or bridge crossing. During final design, a registered civil engineer with expertise in hydrology, hydraulics, and river mechanics shall make a determination of where the underground line could be at risk of exposure through scour or erosion from a 100-year event. Plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion, shall be submitted to CPUC for review and approval prior to construction.
Location	Underground stream crossings
Monitoring / Reporting Action	Applicant to provide CPUC with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating which crossings may be subject to scour. The report shall also provide plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion. CPUC to review and approve the report, then monitor to verify compliance during construction.
Effectiveness Criteria	Underground crossings to be protected from scour.
Responsible Agency	CPUC
Timing	Engineering evaluation, and associated scour protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction. Compliance to be ensured during construction.

Table D.12-27. Mitigation Monitoring Program – Hydrology and Water Resources

MITIGATION MEASURE	H-8b: Consider Los Peñasquitos Canyon scour and erosion potential in power line design. At locations where the buried power line is to be adjacent to Los Peñasquitos Canyon (approximately between MPs 145 and 146.5), the scour and erosion potential for Los Peñasquitos Canyon shall be considered in the design as determined by a registered professional engineer with expertise in river mechanics. Design considerations, which may include burial depth below the adjacent scour depth, extra setbacks, bank protection, or demonstration that the project as proposed will be reasonably safe from Peñasquitos Canyon scour and erosion, shall be reviewed and approved by the CPUC, City of San Diego and County of San Diego prior to the start of construction.
Location	At locations where the buried power line is to be adjacent to Los Peñasquitos Canyon (approximately between MPs 145 and 146.5)
Monitoring / Reporting Action	Applicant to provide CPUC, San Diego County and the City of San Diego with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating expected lateral and vertical scour for Los Peñasquitos Canyon. The report shall also demonstrate how the buried line will be protected from scour. CPUC, San Diego County and the City of San Diego to review and approve the report. Compliance to be verified by CPUC monitoring during construction.
Effectiveness Criteria	Underground power line to be protected from Los Peñasquitos Canyon scour.
Responsible Agency	CPUC, San Diego County and the City of San Diego.
Timing	Engineering evaluation, and associated scour protection design plans, shall be submitted to the CPUC for distribution to other agencies, review, and approval, 60 days prior to the initiation of construction. Compliance to be ensured during construction.

D.12.21 References

Borrego Water District. 2007. Groundwater Management Study, 2001. http://www.borregowd.org/GroundwaterManagement.html, Accessed August, 2007

California Department of Water Resources. 2003. California's Groundwater. Department of Water Resources Bulletin 118.

California Department of Water Resources. 2007. http://wdl.water.ca.gov/gw/map/index.cfm. Accessed August 2007.

CRWQCB (California Regional Water Quality Control Board). 2005. Water Quality Control Plan Colorado River Basin – Region 7.

CRWQCB (California Regional Water Quality Control Board). 1994. Water Quality Control Plan for the San Diego Basin (9) (with amendments effective prior to April 25, 2007).

Government official website of the Baja California (GobBC). 2007. Baja California Government, 2007. http://www.bajacalifornia.gob.mx/portal/index.jsp. Accessed October 2007.

Imperial Irrigation District (IID). 2007. Website http://www.iid.com. Accessed May 31.

Project Clean Water. 2007. Project Clean Water. Online at http://www.projectcleanwater.org. Accessed November.

SDG&E (San Diego Gas & Electric). 2006. PEA (Preliminary Environmental Assessment). http://www.sdge.com/sunrisepowerlink/CPUC.shtml. August, 2006

Stirling Energy Systems (SES). 2007a. Website. http://www.stirlingenergy.com/faq.asp?Type=all. Accessed May 31.

_____. 2007b. Personal communication between Erika Hanson (Stirling Energy Systems) and Marisa Mitchell (Aspen). May 31.

SWRCB (California State Water Resources Control Board). 2007. http://www.waterboards.ca.gov/coloradoriver/, and http://www.waterboards.ca.gov/sandiego. Accessed August 2007.

Tecate Government. 2007. Official website of the Tecate Municipal Government. http://www.tecate.gob.mx/. Accessed October 30, 2007.

U.S.EPA (United States Environmental Protection Agency). 2007. Sole Source Aquifer Designations in EPA, Region 9. June 2000. http://epa.gov/region09/water/groundwater/ssa-pdfs/ssafact.pdf Accessed August, 2007.