4.8 Hydrology and Water Quality

4.8.1 Setting

Setting information in this section was compiled from field visits; the Proponent's Environmental Assessment (PEA) (SCE, 2008); scientific literature; resource agency websites and databases; California Department of Water Resources (DWR) groundwater reports; and General Plans from applicable jurisdictions.

The Proposed Project and alternatives would have components located within the cities of Palm Springs, Rancho Mirage, Cathedral City, Palm Desert, Indian Wells, as well as unincorporated areas of Riverside County, including the Thousand Palms community. The entire study area is located within the north end of the Coachella Valley. The Coachella Valley is flanked by the San Jacinto and Santa Rosa Mountains on the west and the Little San Bernardino Mountains on the east. The Coachella Valley extends to the northwest and southeast of the study area.

Hydrologic Setting

Climate and Drainage Features

Annual rainfall is very low in the study area, ranging from four to six inches per year on the desert floor. Summer temperatures can occasionally exceed 125 °F and winter temperatures seldom fall below freezing. The mountains and upper elevations of the valley are cooler, with an approximate 5 °F drop with every 1,000-foot increase in elevation. Rainfall generally occurs during the months of November through March, although short duration, high intensity storms also occur during the summer months of July through September that can cause localized flash flooding (City of Cathedral City, 2002).

The Proposed Project and alternatives would be located in the northern end of the 8,360 square mile Salton Sea watershed. The major surface water drainage feature in the study area is the Whitewater River. The Whitewater River flows to the southeast from Mount San Gorgonio into the sink formed by the Salton Sea. The major tributaries to the Whitewater River in the study area include: Tahquitz Creek; Palm Canyon Wash; Chino Canyon Creek; Snow Creek Canyon Wash; and Mission Creek (City of Palm Springs, 2007). Figure 4.8-1 shows the regional surface water features in the study area. The Whitewater River has perennial flow in the mountains, but because of diversions and percolation into the basin, the river becomes dry further downstream. The constructed downstream extension of the river channel known as the Coachella Valley Storm Water Channel, serves as a drainage way for irrigation return flows, treated community wastewater, and storm runoff (CRRWQCB, 2006).

The proposed Farrell-Garnet 115 kV subtransmission line and Alternatives 2, 3, 6, and 7 would cross the Whitewater River. The Alternative 2 and 3 alignments also cross Chino Canyon Creek, which is a tributary to the Whitewater River. The Whitewater River and Chino Canyon Creek crossings would be located in a flat and wide wash area that contains sparse vegetation.

Surface Water Quality

The water quality of the regional surface water is largely dependant upon land uses that influence runoff. Agriculture and urban development are dominant land uses in area that affect the surface water quality. Due to the dry climate, surface water streams and rivers are ephemeral and tend to only flow during rain events and following snow melt. Agriculture irrigation return flows also contribute to surface water volume and water quality. Stormwater runoff from urban and agricultural land uses can pick up pollutants that collect on the ground surface and affect water quality of receiving streams and rivers.

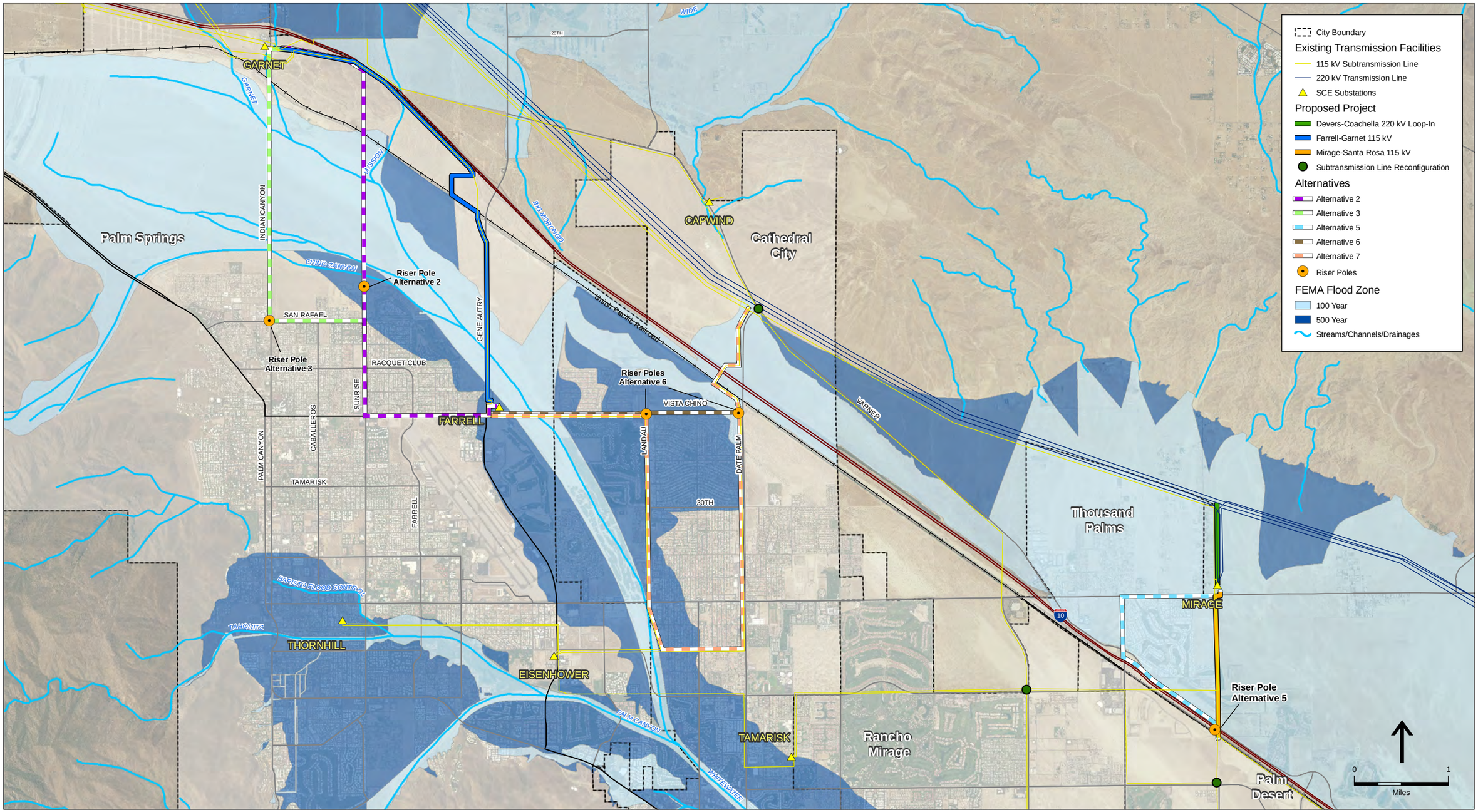
The Coachella Valley Stormwater Channel is a segment of the Whitewater River that has been lined with concrete to improve flood protection. This portion of the river is a major receiving water body for the northern portion of the Coachella Valley and the study area. The Whitewater River ultimately discharges all surface water into the Salton Sea. Both the Coachella Valley Stormwater Channel and the Salton Sea have been identified as impaired water bodies by the Colorado River Basin Regional Water Quality Control Board (CRRWQCB). These impairments are further discussed in the *Regulatory Context* section.

Flooding

Potential flooding problems in the study area are related to rises in the water level of Whitewater River and its tributaries, to storm flooding on the alluvial fans, and to runoff associated with the foothills of the Santa Rosa and Little San Bernardino Mountains. Figure 4.8-1 shows the Federal Emergency Management Agency (FEMA) mapped 100-year and 500-year flood hazard areas. The Coachella Valley Water District (CVWD) and Riverside County Flood Control District (RCFCD) are responsible for managing flood control facilities within the valley. As stated above, a lower reach of the Whitewater River was channelized to provide flood protection for people and farms in the valley. The Whitewater River is channelized downstream from Point Happy in La Quinta near State Route 111 and Washington Avenue. This channelized portion of the river is referred to as the Coachella Valley Stormwater Channel.

The Tachevah Creek Detention Reservoir and the Tahquitz Creek Debris Basin are two flood-control structures in the Palm Springs area required by the California State Water Code to be monitored for structural safety and that have the potential to pose a flood risk to the City (City of Palm Springs, 2007). The City of Palm Springs is within the dam inundation zone of these detention basins.

The Tachevah Creek Detention Reservoir, located about 1,200 feet downstream from the mouth of Tachevah Canyon, is formed by a 42-foot-high embankment constructed of compacted earth fill, and has a capacity of approximately 650 million gallons. This dam was built in 1964 and protects the highly urbanized central part of the City of Palm Springs from floods and debris flows (City of Palm Springs, 2007). No portion of the Proposed Project would be located within the identified dam inundation zone.



SOURCE: SCE, 2008; FEMA, 2005; NHD, 2002: NAIP, 2005

Devers-Mirage 115 kV Subtransmission System Split Project . 207059

Figure 4.8-1

Local Hydrology

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The Tahquitz Creek Debris Basin, which is a considerably smaller structure, was designed and constructed to reduce the risk of flooding that the Tahquitz Creek has historically posed to Palm Springs. Completed in May 1991 by the U.S. Army Corps of Engineers (USACE), the basin consists of a natural channel and dam with a debris storage capacity of about 33 million gallons and a two-mile reach of grass-lined channel used as a golf course and bicycle and equestrian trails. An inundation pathway for this dam is not available, possibly because it holds water only rarely during periods of intense and continuous rainfall. Therefore, its inundation threat is considered very low (City of Palm Springs, 2007).

Groundwater

Groundwater information was obtained from the DWR Groundwater Bulletin 118 (DWR, 2003). The Proposed Project and alternative alignments are located within the Colorado River Hydrologic Region Groundwater Basin, as delineated by the DWR. The Colorado River Hydrologic Region has been divided into smaller and more distinct basins and subbasins. The Proposed Project and alternative alignments are located within the Coachella Valley Basin. The Coachella Valley Basin is divided into four subbasins. These subbasins include Indio, Mission Creek, Desert Hot Springs, and San Gorgonio Pass. The Proposed Project and alternative alignments and sites are located within the Indio and Mission Creek subbasins.

Indio Subbasin

The Indio Subbasin (DWR groundwater basin number 7-21.01) is located in Riverside, San Diego, and Imperial Counties and has a surface area of about 336,000 acres (525 square miles). The Banning fault bounds the subbasin on the north and the semi-permeable rocks of the Indio Hills mark its northeast boundary. Impermeable rocks of the San Jacinto and Santa Rosa Mountains bound the subbasin on the south. A bedrock constriction separates the Indio Subbasin from the San Gorgonio Pass Subbasin on the northwest. The Salton Sea is the eastern boundary and the subbasin's primary discharge area. A low drainage divide forms a short boundary with the West Salton Sea Groundwater Basin in the southeast.

Surface runoff and subsurface inflow are significant sources of recharge to the subbasin. In addition, the Whitewater River spreading grounds northwest of Palm Springs receives Colorado River Aqueduct water and has a maximum capacity of 300,000 acre feet per year (af/year). Colorado River water is conveyed into the subbasin via the Coachella Canal, which also supplies a pilot recharge project facility located in the southeastern part of the subbasin.

Prior to 1949, groundwater levels steadily declined because of pumping. After 1949 and into the early 1980s, water levels in the central and southern subbasin area rose as imported Colorado River water begin to recharge parts of the subbasin; however, levels at other locations in the subbasin continued to decline. Since the 1980s, water levels in the central and southern areas have declined despite Colorado River imports. These declines are largely due to increasing urbanization and groundwater pumping.

Native groundwater in Indio Subbasin is predominantly calcium bicarbonate in character with total dissolved solids (TDS) content of 300 milligrams per liter (mg/L). Colorado River water is recharged into the subbasin at the Whitewater River spreading grounds and this water fluctuates between sodium sulfate and calcium sulfate in character. Groundwater mixing occurs adjacent to the Garnet Hill fault and near the southeast end of the Banning fault. This mixing suggests that the faults are less effective barriers to groundwater flow in the southeast than they are in the north.

A plume of high nitrate concentration (45 mg/L or greater) has been identified extending southeasterly from near Cathedral City toward the City of La Quinta. The nitrate plume is a potential threat to deeper underlying groundwater via improperly constructed, sealed, or abandoned wells.

In addition, groundwater near major faults, such as the Banning and San Andreas faults, contains elevated levels of fluoride.

Mission Creek Subbasin

The Mission Creek Subbasin (DWR groundwater basin number 7-21.02) is located in Riverside County and has a surface area is about 49,000 acres (76 square miles). The subbasin underlies the northwest portion of the Coachella Valley and is bounded by the impermeable rocks of the San Bernardino Mountains on the west and the Banning fault on the south. The Mission Creek fault bounds the northern and eastern edges of the subbasin and the Indio Hills bound the subbasin on the southeast.

Runoff from the surrounding highlands drains into the subbasin from intermittent creeks and rivers supplying most of the recharge to the subbasin. Subsurface leakage occurs across the Mission Creek Fault approximately three miles southeast from the City of Desert Hot Springs, allowing groundwater of different quality to enter the subbasin from the neighboring Desert Hot Springs Subbasin.

Water levels have been declining since the early 1950s due to groundwater extractions. Groundwater level data indicate that since 1952, water levels have declined at a rate of 0.5 feet to 1.5 feet per year. In 1971, the United States Geological Survey (USGS) recorded water levels within the subbasin and found that a semi-flat gradient existed, slowing groundwater movement. The study showed that the groundwater gradient generally moved toward the southwest. Current water levels vary in domestic wells from 140 to 721 feet below ground surface (bgs) with an average depth to water of 372 feet bgs.

Groundwater in the subbasin ranges in character from a calcium-magnesium bicarbonate type in the northwest to a sodium chloride sulfate type in the southeast. TDS content is generally below 500 mg/L.

Regulatory Context

Federal and State Water Quality Policies

The statutes that would govern the water quality aspects of the Proposed Project and alternatives include the Federal Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act (Porter-Cologne); these acts provide the basis for water quality regulation in the study area.

The California legislature has assigned the primary responsibility to administer regulations for the protection and enhancement of water quality to the California State Water Resources Control Board (SWRQB) and the Regional Water Quality Control Boards (RWQCB). The SWRCB provides State-level coordination of the water quality control program by establishing statewide policies and plans for the implementation of State and federal regulations. Nine RWQCBs throughout California adopt and implement water quality control plans (basin plans) that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The Proposed Project and alternatives alignments and sites are located within the CRRWQCB jurisdiction.

Section 404 of the Clean Water Act established a program to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. The USACE has primary federal responsibility for administering Section 404. Activities in waters of the U.S. regulated under this program include the placement of fill for development, water resource, infrastructure, and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the U.S.

Section 401 of the CWA provides the authority for the State-operated 401 Certification Programs. The 401 certification process is used by the State to evaluate potential effects of projects requiring Section 404 permits.

Beneficial Use and Section 303(d)

The CRRWQCB is responsible for the protection of the beneficial uses of waters within the study area. The CRRWQCB uses planning, permitting, and enforcement authorities to meet this responsibility and has adopted the Regional Water Quality Control Plan for the Colorado River Region (Basin Plan) to implement plans, policies, and provisions for water quality management. The most recent revision to the Basin Plan was adopted in June of 2006 (CRRWQCB, 2006).

In accordance with State policy for water quality control, the CRRWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction. The beneficial uses designated in the Basin Plan for the water bodies relevant to the study area are identified in Table 4.8-1. The applicable beneficial use categories are defined in Table 4.8-2. The Basin Plan also includes water quality objectives for each of the identified beneficial uses.

TABLE 4.8-1
WHITEWATER HYDROLOGIC UNIT BENEFICIAL USES[a]

Waterbody	MUN	AGR	AQUA	FRSH	IND	GWR	REC 1	REC 2	WARM	COLD	WILD	POW	RARE
Whitewater River[b]	E	E				E	E	E	I	E	E	E	
Coachella Valley Stormwater Channel				E			E[c]	E[c]	E		E		E[d]
Salton Sea			E		P		E	E	E		E		E
Chino Canyon Creek	E					E	P	E	E		E		
Mission Creek	P	E				E	E	E	E		E		
Palm Canyon Creek	P	E				E	E	E	E		E		
Snow Creek	E					E	E	E[e]		E	E		
Tahquitz Creek	P					E	E	E		E	E		

E = existing beneficial use
I = intermittent use
P = potential beneficial use

[a] Refer to Table 4.8-2, below, for definition of abbreviations
[b] Includes the section of flow from the headwaters in the San Gorgonio Mountains to (and including) the Whitewater Recharge Basins near the Indian Canyon Drive crossing in Palm Springs.
[c] Unauthorized Use
[d] Rare, endangered, or threatened wildlife exists in or utilizes some of these waterway(s). If the RARE beneficial use may be affected by a water quality control decision, responsibility for substantiation of the existence of rare, endangered, or threatened species on a case-by-case basis is upon the California Department of Fish and Game on its own initiative and/or at the request of the CRRWQB; and such substantiation must be provided within a reasonable time frame as approved by the CRRWQB.
[e] Most of the creek is on National Forest Service land except one section which is owned by Desert Water Agency (DWA). This section provides the only reasonable access to the area. To enter Falls or Snow Creek through DWA's land, a permit is required. The permit stipulates that persons entering through DWA's land must agree not to swim, fish, or wade in any portion of the creek.

SOURCE: CRRWQCB, 2006.

Furthermore, under Section 303(d) of the 1972 CWA, the State of California is required to develop a list of quality impaired water bodies that do not meet water quality standards and objectives and are not supporting their beneficial uses. The law requires states to establish priority ranking for water bodies on the lists and establish Total Maximum Daily Loads (TMDLs), to address the impairment. A TMDL serves as the means to attain and maintain water quality standards (WQSs) for the impaired water body. A statewide list of impaired water bodies was first established in 1998 and subsequently has been updated to include more recent information and new pollutants. Table 4.8-3 provides a list of impaired waters, as designated by the CRRWQCB, relevant to the study area along with the corresponding pollutant(s) and issue(s) of concern.

NPDES Program (CWA Section 402)

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added section 402(p), which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. In November 1990, the

TABLE 4.8-2
DEFINITIONS OF BENEFICIAL USES OF SURFACE WATERS

Beneficial Use	Description
Municipal and Domestic Supply (MUN)	Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
Agricultural Supply (AGR)	Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
Aquaculture (AQUA)	Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.
Freshwater Replenishment (FRSH)	Uses of water for natural or artificial maintenance of surface water quantity or quality.
Industrial Service Supply (IND)	Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and or oil well repressurization.
Groundwater Recharge (GWR)	Uses of water for natural or artificial recharge or groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
Water Contact Recreation (REC 1)	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white-water activities, fishing, or use of natural hot springs.
Non-Contact Water Recreation (REC 2)	Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Warm Freshwater Habitat (WARM)	Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Cold Freshwater Habitat (COLD)	Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Wildlife Habitat (WILD)	Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Hydropower Generation (POW)	Uses of water for hydropower generation.
Rare, Threatened, or Endangered Species (RARE)	Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under State or federal laws as rare, threatened, or endangered.

SOURCE: CRRWQCB, 2006.

TABLE 4.8-3
2006 CWA SECTION 303(D)
LIST OF WATER QUALITY LIMITED SEGMENTS IN THE STUDY AREA

Name	Pollutant/Stressor	Source	TMDL Completion Date
Coachella Valley Storm Water Channel	Pathogens[a]	Unknown	2006
	Toxaphene[b]	Unknown	2019
	DDT[b]	Unknown	2021
	Dieldrin[b]	Unknown	2021
	PCBs (Polychlorinated biphenyls)[b]	Unknown	2021
Salton Sea	Nutrients	Major Industrial Point Source Agricultural Return Flows Out-of-State Sources	2006
	Salinity	Agricultural Return Flows Out-of-State Sources Point Source	Not Applicable[c]
	Selenium	Agricultural Return Flows	2019
	Arsenic	Unknown	2021
	Chloropyrifos	Unknown	2021
	DDT	Unknown	2021
	Enterococcus	Unknown	2021

[a] This listing for pathogens only applies to a 17-mile area of the Coachella Valley Storm Water Channel from Dillion Road to the Salton Sea.
[b] This listing for toxaphene only applies to a two mile area of the Coachella Valley Storm Water Channel from Lincoln Street to the Salton Sea.
[c] TMDL development will not be effective in addressing this problem, which will require an engineering solution with federal, local, and State cooperation

SOURCE: CRRWQCB, 2007 and 2009.

U.S. Environmental Protection Agency (USEPA) published final regulations that establish storm water permit application requirements for discharges of storm water to waters of the United States from construction projects that encompass five or more acres of soil disturbance. Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES Program to address storm water discharges from construction sites that disturb land equal to or greater than one acre and less than five acres (small construction activity).

General Construction Permit (Order 99-08-DWQ)

While federal regulations allow two permitting options for storm water discharges (individual permits and General Permits), the SWRCB has chosen to adopt only one statewide General Permit at this time that would apply to all storm water discharges associated with construction activity.[1] This General Permit requires all dischargers where construction activity disturbs one acre or more, to:

[1] SWRCB Order No. 99-08-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000002.

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that would prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters.

- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation.

- Perform inspections of all BMPs.

This General Permit is implemented and enforced by the nine RWQCBs. The CRRWQCB administers the stormwater permitting program in the section of Riverside County that includes the study area. Dischargers are required to submit a Notice of Intent (NOI) to obtain coverage under this General Permit and annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. Dischargers are responsible for notifying the relevant RWQCB of violations or incidents of non-compliance.

On August 19, 1999, the SWRCB reissued the General Construction Storm Water Permit (Water Quality Order 99-08-DWQ, referred to as "General Permit"). In September 2000, a court decision directed the SWRCB to modify the provisions of the General Permit to require permittees to implement specific sampling and analytical procedures to determine whether BMPs implemented on a construction site are: (1) preventing further impairment by sediment in storm waters discharged directly into waters listed as impaired for sediment or silt, and (2) preventing other pollutants, that are known or should be known by permittees to occur on construction sites and that are not visually detectable in storm water discharges, from causing or contributing to exceedances of water quality objectives. The monitoring provisions in the General Permit have been modified pursuant to the court order.

If the project is approved, SCE will submit an NOI to the SWRCB and obtain coverage under the General Permit. The preparation of a SWPPP would be required in accordance with the General Permit. The SWPPP would include, but not be limited to, relevant measures, conditions, and obligations which would reduce the impacts of construction activities on stormwater and receiving water quality and quantity.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act (codified in the California Water Code, §13000 *et seq*.) is the basic water quality control law for California. As mentioned above, it is implemented by the SWRCB and the nine RWQCBs. The SWRCB establishes statewide policy for water quality control and provides oversight of the operations of the RWQCBs. The RWQCBs have jurisdiction over specific geographic areas that are defined by watersheds. The portion of Riverside County that includes the Proposed Project and alternative alignments and sites is under the jurisdiction of the CRRWQCB. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges

of waste to waters of the State[2] could cause pollution or nuisance, including impacts to public health and the environment.

Dredge/Fill Activities and Waste Discharge Requirements

Actions that involve or are expected to involve dredge or fill, and discharge of waste, are subject to water quality certification under section 401of the CWA and/or waste discharge requirements under the Porter-Cologne Act. The SWRCB's Division of Water Rights processes section 401 water quality certifications on projects that involve water diversions (California Code of Regulations, title 23, § 3855). Chapter 4, Article 4 of the Porter-Cologne Act (California Water Code, § 13260-13274), states that persons discharging or proposing to discharge waste that could affect the quality of waters of the State (other than into a community sewer system) shall file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (waters of the United States) an NPDES permit is required, which is issued under both State and federal law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the State (such as isolated wetlands), Waste Discharge Requirements (WDRs) are required and are issued exclusively under State law. The WDR application process is generally the same as for CWA section 401 water quality certification, though in this case it does not matter whether the particular project is subject to federal regulation. SCE would contact the CRRWQCB and file a Report of Waste Discharge; the CRRWQCB would then determine whether an issuance or a waiver of WDR would be required.

Riverside County

The Riverside County General Plan includes general polices relating to hydrology, water resources, water quality, and flooding. Following are polices that may be applicable to the Proposed Project and alternatives (Riverside County, 2003):

> *Policy OS 2.2*: Where feasible, decrease stormwater runoff by reducing pavement in development areas, and by design practices such as permeable parking bays and porous parking lots with bermed storage areas for rainwater detention.
>
> *Policy OS 3.3*: Minimize pollutant discharge into storm drainage systems and natural drainage and aquifers.
>
> *Policy OS 4.4*: Incorporate natural drainage systems into developments where appropriate and feasible.
>
> *Policy OS 5.3*: Based upon site, specific study, all development shall be set back from the floodway boundary a distance adequate to address the following issues: a) public safety; b) erosion; c) riparian or wetland buffer; d) wildlife movement corridor or linkage; and e) slopes.

[2] "Waters of the state" are defined in the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." (Water Code, § 13050 (e))

Policy OS 5.5: New development shall preserve and enhance existing native riparian habitat and prevent obstruction of natural watercourses. Incentives shall be utilized to the maximum extent possible.

Policy S 4.1: For new construction and proposals for substantial improvements to residential and nonresidential development within 100-year floodplains as mapped by FEMA or as determined by site specific hydrologic studies for areas not mapped by FEMA, the County shall apply a minimum level of acceptable risk; and disapprove projects that cannot mitigate the hazard to the satisfaction of the Building Official or other responsible agency.

Policy S 4.2: Enforce provisions of the Building Code in conjunction with the following guidelines:

a. All residential, commercial and industrial structures shall be flood-proofed from the 100-year storm flow, and the finished floor elevation shall be constructed at such a height as to meet this requirement. Critical facilities should be constructed above grade to the satisfaction of the Building Official, based on federal, state, or other reliable hydrologic studies.

b. Critical facilities shall not be permitted in floodplains unless the project design ensures that there are two routes for emergency egress and regress, and minimizes the potential for debris or flooding to block emergency routes, either through the construction of dikes, bridges, or large-diameter storm drains under roads used for primary access.

c. Development using, storing, or otherwise involved with substantial quantities of onsite hazardous materials shall not be permitted, unless all standards for evaluation, anchoring, and flood-proofing have been satisfied; and hazardous materials are stored in watertight containers, not capable of floating, to the extent required by state and federal laws and regulations.

d. Specific flood-proofing measures may require: use of paints, membranes, or mortar to reduce water seepage through walls; installation of water tight doors, bulkheads, and shutters; installation of flood water pumps in structures; and proper modification and protection of all electrical equipment, circuits, and appliances so that the risk of electrocution or fire is eliminated. However, fully enclosed areas that are below finished floors shall require openings to equalize the forces on both sides of the walls.

Policy S 4.5: Prohibit substantial modification to water courses, unless modification does not increase erosion or adjacent sedimentation, or increase water velocities, so as to be detrimental to adjacent property, nor adversely affect adjacent wetlands or riparian habitat.

Policy S 4.7: Any substantial modification to a watercourse shall be done in the least environmentally damaging manner possible in order to maintain adequate wildlife corridors and linkages and maximize groundwater recharge.

Policy S 4.8: Allow development within the floodway fringe, if the proposed structures can be adequately flood-proofed and will not contribute to property damage or risks to public safety.

Policy S 4.9: Within the floodway fringe of a floodplain as mapped by FEMA or as determined by site specific hydrologic studies for areas not mapped by FEMA, require

development to be capable of withstanding flooding and to minimize use of fill. However, some development may be compatible within flood plains and floodways, as may some other land uses. In such cases, flood proofing would not be required. Compatible uses shall not, however, obstruct flows or adversely affect upstream or downstream properties with increased velocities, erosion backwater effects, or concentrations of flows.

City of Palm Springs

The City of Palm Springs General Plan includes the following goal and polices related to hydrology and water quality that may be applicable to the Proposed Project and alternatives (City of Palm Springs, 2007):

Goal SA3: Reduce, to the greatest extent possible, the risk of life, property, and essential facilities from flooding and other hydrological hazards within the City.

Policy SA3.2: Evaluate all development proposals located in areas that are subject to flooding to minimize the exposure of life and property to potential flood risks.

Policy SA3.4: Continue to work with the Federal Emergency Management Agency, Riverside County Flood Control and Water Conservation District, the Coachella Valley Water District, and the United States Army Corps of Engineers to receive and implement updated flood-control measures and information.

Policy SA3.8: Implement the regulations of the City of Palm Springs Flood Damage Prevention Ordinance (sections 93.17.00 et seq) to minimize public and private losses for properties within the 100-year flood zone area.

Policy RC9.5: Protect the quality and quantity of water from adverse impacts of development activities so that sufficient water is available to sustain habitats and wildlife.

City of Indian Wells

The City of Indian Wells General Plan includes the following goal and policy related to hydrology and water quality that may be applicable to the Proposed Project and alternatives (City of Indian Wells, 1996):

Goal IIIA5: Conserve and protection of surface waters, groundwater, and imported water resources.

Policy IIIA5.4: Minimize soil erosion through conservation of native vegetation, use of permeable ground materials, and careful regulation of grading practices.

City of Rancho Mirage

The City of Rancho Mirage General Plan includes the following policy related to hydrology and water quality that may be applicable to the Proposed Project and alternatives (City of Rancho Mirage, 2005):

Policy 2: The City shall evaluate all proposed land use and development plans for their potential to create groundwater contamination hazards from point and non point sources and confer with other appropriate agencies to assure adequate review.

City of Cathedral City

The City of Cathedral City General Plan includes the following goal and policy related to hydrology and water quality that may be applicable to the Proposed Project and alternatives (City of Cathedral City, 2002):

> *Goal*: The provisions of adequate facilities to protect lives and property from local and regional flooding hazards.
>
> *Policy 6*: All new development shall be required to incorporate adequate flood mitigation measures, such as grading that prevents adverse drainage impacts to adjacent properties, on-site retention of runoff, and the adequate siting and sizing of structures located within flood plains.

4.8.2 Significance Criteria

Significance criteria, or thresholds, listed in Appendix G of the CEQA Guidelines area used to determine the significance of potential impacts due to the Proposed Project. Based on these criteria, a project would have a significant hydrology- or water quality-related effect on the environment if it would:

a) Violate any water quality standards or waste discharge requirements;

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

c) Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or sedimentation on- or off-site;

d) Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

f) Substantially degrade water quality;

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows;

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or

j) Inundation by seiche, tsunami, or mudflow.

Some of the criteria listed in Appendix G of the CEQA Guidelines are not directly applicable to the Proposed Project and alternatives, or otherwise do not merit further discussion. For example, the study area is not subject to inundation by seiche, tsunami, or mudflow; therefore, impacts associated with criterion j) are not addressed further in this EIR. Further, all potential impacts of the Proposed Project and alternatives upon water quality are addressed within the context of criterion a). Criterion a) includes all applicable federal, State, and local water quality standards or waste discharge requirements. Further, the CRRWQCB water quality standards and objectives are protective of a wide range of beneficial uses within all areas of the Proposed Project and alternative alignments and sites (CRRWQCB, 2006). Resultantly, potential water quality impacts outside of those addressed by criterion a) are not applicable to the Proposed Project and alternatives and, consequently, impacts related to otherwise degrading water quality (criterion f)) are not addressed further in this EIR.

In addition, the Proposed Project and alternatives would not have an impact upon flooding, and the various criteria (d), e), g), and i)) related to flooding or stormwater drainage systems, are subsequently not applicable in this case. Neither the Proposed Project nor the alternatives would place housing within a 100-year flood hazard area, nor would they expose people or structures to a significant risk of loss, injury, or death involving flooding (e.g., any existing risk concerning flooding would not be exacerbated by the Proposed Project or the alternatives). The Proposed Project and alternatives would not increase the rate or amount of surface runoff such that it would result in substantial flooding. Regarding criterion e), there is no potential for the Proposed Project and alternatives to impact stormwater drainage systems or provide additional sources of polluted runoff not addressed in the context of the other criteria. All potential impacts concerning runoff and erosion resulting from implementation of the Proposed Project or alternatives are addressed under criteria a) and c).

4.8.3 Applicant Proposed Measures

SCE standard construction and operation protocols would be followed and all new site drainage installations would be consistent with NPDES and SWPPP. In addition, SCE has committed to implementing the following applicant proposed measures (APMs) as part of the Proposed Project.

APM HYDRO-1. Grading Activities. Grading activities would not commence if heavy rain is forecasted for the period of time of major earthmoving activities through compaction and stabilization of the site.

APM HYDRO-2A. Erosion Control and Drainage Plan. An engineered erosion control and drainage plan would be developed as part of the site grading plan. The plan would be developed in accordance with the County of Riverside Hydrology Manual and would address all construction activities associated with the project. The location of the discharge of site runoff for construction would be defined in final engineering and in consultation with Riverside County, the RWQCB, and the CDFG.

APM HYDRO-2B. Construction Erosion Control Plan. SCE shall develop an erosion control plan incorporating construction-phase measures to limit and control erosion and siltation. The erosion control plan shall include components such as phasing of grading, limiting areas of disturbance, diversion of runoff away from disturbed areas, protective measures for sensitive areas, outlet protection, and provision for revegetation or mulching. The plan shall also prescribe treatment measures to trap sediment once it has been mobilized, at a scale and density appropriate to the size and slope of the catchment.

APM HYDRO-2C. Environmental Training Program. An environmental training program would be established to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, to all field personnel involved in the construction of the Proposed Project elements. A monitoring program would be implemented to ensure that the plans are followed throughout the period of construction.

APM HYDRO-3. Access Road Location. Prior to final engineering of the proposed access road, SCE would consult with Riverside County, CDFG, and the RWQCB regarding the location of the access road.

APM HYDRO-4. Hazardous Substance Control and Emergency Response Plan. SCE would prepare a Hazardous Substance Control and Emergency Response Plan, which would include preparations for quick and safe cleanup of accidental spills. This plan would be submitted to agencies with the grading permit application. It would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. The plan would identify areas where refueling and vehicle maintenance activities and storage of hazardous materials, if any, would be permitted. Oil-absorbent materials, tarps, and storage drums would be used to contain and control any minor releases of mineral oil.

4.8.4 Impacts and Mitigation Measures

Impacts on hydrology and water quality could result from ground-disturbing activities that could result in on- or off-site erosion or sedimentation. Construction equipment would use oils and fuels that could be spilled or leaked and introduced into nearby water bodies. In addition, construction within the Whitewater River and other flood hazard areas could result in flood water impediments and or inundation. Although the APMs outlined above would reduce impacts to hydrology and water quality, additional measures are recommended, where applicable, to ensure that impacts would be reduced to less than significant levels.

a) Violate any water quality standards or waste discharge requirements.

Dewatering activities have the potential to induce erosion and cause sediment or contaminated water or soils to be delivered on nearby surface waterways, thereby degrading water quality. Given that the most shallow groundwater depth in the project area is approximately 140 feet bgs and that the proposed excavations for tubular steel pole (TSP) installation would not exceed 25 feet in depth, it is highly unlikely that groundwater would be encountered during construction. Therefore, impacts from dewatering during construction are not anticipated (No Impact).

Impact 4.8-1: Construction activities could result in increased erosion and sedimentation and/or pollutant (e.g., fuel and lubricant) loading to surface waterways, which could increase turbidity, suspend soils, or otherwise decrease water quality in surface waterways. *Less than significant* (Class III)

Construction activities associated with the Proposed Project could increase the turbidity or otherwise degrade the water quality of receiving stream channels or other surface waterways. Activities that disturb the ground near or within a stream channel (e.g., clearing, grading, and drilling) could make soils and sediments more susceptible to erosion by altering their existing structure or state. Depending on the distance and ground slope, some portion of the eroded material could eventually be delivered to a receiving stream channel or other type of waterway over a relatively short time period (e.g., during the next rain event). In this case, increased erosion rates would likely lead to increased sediment concentrations and turbidity levels in the receiving stream channel and have a potentially adverse impact on the beneficial uses identified by the CRRWQCB (2006). Further, moderate increases in surface runoff from construction areas could initiate or exacerbate an erosion and sediment delivery problem. An increase in the runoff rate from a construction area may result from temporarily decreasing ground surface resistance to overland flow (e.g., clearing of native vegetation or slope grading), decreasing the infiltration capacity of the soil by means of compaction (e.g., with heavy equipment), or by increasing the velocity of runoff (e.g., concentrating flow into manmade features or into existing rills or gullies). In addition, if construction equipment or workers inadvertently release pollutants (e.g., hydraulic fluid or petroleum) on site, these compounds could be entrained by runoff and discharged into receiving channel(s) causing water quality degradation. The extent of erosion or pollution that could occur at any given construction site varies depending on soil type, vegetation/cover, and weather conditions.

Most elements of the Proposed Project that would require construction involve only short-term (i.e., within a single season) construction activities, and thus the associated potential impacts would be short-lived in nature. Actions associated with the Proposed Project that include notable construction components include removal of wood poles and lattice steel towers, installation of new TSPs, light weight steel (LST) poles, and lattice steel towers, preparation of wire stringing sites, installation of access roads, and development of material staging yards. Specific construction activities referenced under this potential impact include, but are not limited to, clearing and grading, excavation work, and the stockpiling of soil or sediments. The Proposed Project would disturb a large area overall; however, the area of disturbance would not be concentrated in one or two locations, but rather spread throughout the entire Proposed Project area at discrete locations along the alignments. Therefore, the magnitude of the overall potential impact with respect to erosion and sediment delivery would be easier to control or prevent. Nevertheless, the Proposed Project would traverse the floor of the Coachella Valley, where soil erosion ratings vary from slight to extreme, therefore increasing the risk of soil erosion.

SCE has committed to implementing construction practices and regulatory requirements intended to control erosion and protect surface water. As part of its standard construction practices, SCE would develop and implement a specific erosion control and drainage plan, and implement surface water protection methods, or Best Management Practices (BMPs), for each construction

activity conducted as part of the Proposed Project (see APMs HYDRO-1 through HYDRO-4, above). In addition, SCE would be required to obtain and comply with the NPDES General Permit, which requires development and implementation of a SWPPP for the Proposed Project. The General Permit also includes provisions for inspecting the implementation of BMPs and monitoring their performance. Implementation of the APMs and compliance with the State requirement to prepare and implement a SWPPP and necessary waste discharge requirements would ensure impacts to water quality associated with construction of the Proposed Project would be less than significant.

Mitigation: None required.

Impact 4.8-2: Operation and maintenance of the Proposed Project could result in increased erosion and sedimentation loading to surface waterways, which could increase turbidity, suspend soils, or otherwise decrease water quality in surface waterways. *Less than significant* (Class III)

Maintenance activities associated with the Proposed Project could increase the turbidity within receiving stream channels or other surface waterways. Approximately 0.6 mile of new access roads and 0.1 mile of new spur roads would be constructed in association with the portion of the proposed Farrell-Garnet line that would require new ROW, north of the Union Pacific Railroad (UPRR). In addition, existing access roads would be cleared and re-compacted during construction and approximately 1,320 linear feet of new permanent access roads would be constructed in association with the Devers-Coachella Valley 220 kV Loop-In. In general, roads commonly lead to increases in the volume of surface runoff as well as increases in erosion and sediment delivery. This is attributable to the fact that road installation substantially reduces the infiltration capacity of soils and disturbs the existing soil structure, making the soil more susceptible to erosion and entrainment by runoff. The beneficial uses of the surface water channels within the Proposed Project area are protected by the water quality standards outlined in the Basin Plan (CRRWQCB, 2006); these beneficial uses could be adversely affected by increased sedimentation and turbidity levels resulting from the erosion and delivery of sediment from the proposed new access roads.

Potential surface water quality impacts from maintenance activities are somewhat different with respect to the existing requirements for water quality protection. The existing measures required of SCE (e.g., the General Permit) are sufficient to reduce potential construction-related water quality impacts to a less than significant level; however, with respect to potential impacts associated with the proposed new access roads, the required measures are not necessarily sufficient. Nevertheless, as discussed in Chapter 2, *Project Description*, drainage structures (e.g., wet crossings, water bars, over side drains, pipe culverts, and energy dissipaters) would be installed on new and existing access roads utilized by the Proposed Project in order to prevent erosion from uncontrolled water flow. Furthermore, implementation of APM HYDRO-3 would require that SCE consult with Riverside County, CDFG, and the RWQCB regarding the location of access roads and would ensure that impacts would be less than significant.

Mitigation: None required.

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b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge.

Impact 4.8-3: Proposed Project operations could affect the local groundwater aquifer by introducing impervious surfaces that could reduce groundwater recharge. ***Less than significant*** **(Class III)**

The Proposed Project would introduce new impervious surfaces in the Coachella Valley through the construction of new access roads, a substation driveway, new lattice tower and pole foundations, and new foundations at substations to support new electrical components. These project components would require soil compaction and installation of concrete foundations. Compacted soil and concrete would prevent precipitation from infiltrating into the otherwise highly permeable soils of the valley. Large areas of impervious surfaces can prevent precipitation infiltration and reduce groundwater aquifer inflows.

The Proposed Project would be located over two defined groundwater subbasins within the larger Coachella Valley groundwater basin. As described above and reported by DWR, these two subbasins (Indio and Mission Creek) are principally recharged from seasonal runoff drainage from the nearby mountains which percolates through alluvial fan deposits and from highland runoff into intermittent creeks and rivers. With the exception of one proposed pole replacement within the Whitewater River, the Proposed Project would not affect alluvial fans or intermittent creeks. Therefore, the Project would not have an impact on the principal groundwater recharge areas. The pole replacement would have no greater groundwater recharge interference than the existing condition. The surface area of the proposed access roads, driveways, and electrical component foundations would only represent a fraction of the total surface area of these groundwater subbasins. The small increase in impervious areas, relative to the size of the subbasin surface areas, would ensure the Proposed Project would not affect the level of the local groundwater table. Impacts would be less than significant.

Mitigation: None required.

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c) Substantially alter the existing drainage pattern of a 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 sedimentation on- or off-site.

Impact 4.8-4: Proposed Project construction activities could impact local drainage patterns, or the course of a given stream, resulting in substantial on- or off-site erosion or sedimentation. ***Less than significant with mitigation*** **(Class II)**

The proposed Farrell-Garnet 115 kV subtransmission line would require temporary access to the Whitewater River wash by construction equipment during the removal and installation of the

proposed pole replacements. This activity could impact the drainage pattern of the river and result in substantial on- or off-site erosion or sedimentation. All other Proposed Project components would be located well outside of a defined stream or river channel and therefore would not have the potential to alter the course of any such stream or river or result in on- or off-site erosion or sedimentation.

The Whitewater River is a jurisdictional wetland as defined by the CWA, and impacts to this potentially jurisdictional feature would regulated under a CWA Section 401 permit from the RWQCB, and a CWA section 404 permit from the USACE. Implementation of Mitigation Measure 4.4-10 (see Section 4.4, *Biological Resources*) would require SCE to perform a wetland delineation and to modify the Proposed Project whenever feasible in order to minimize disturbance to the Whitewater River. This river is also a water of the State; therefore, construction activities would be required to comply with the State Porter Cologne Water Quality Control Act. Compliance with this act is achieved by obtaining waste discharge requirement and construction activity permit coverage from the CRRWQCB. The APMs listed above would also be implemented to reduce erosion and sedimentation. However, the following mitigation measures are intended to strengthen the intent and add specific requirements to APMs HYDRO-1 and HYDRO-2A. This impact would be less than significant with implementation of the following mitigation measures.

> **Mitigation Measure 4.8-4a:** In addition to measures required by APM HYDRO-1, SCE shall ensure that the construction foreman checks daily weather forecasts when construction is occurring within the Whitewater River Wash. Any precipitation forecast shall require the construction contractor to ensure erosion control BMPs identified in the SWPPP are properly installed and shall ensure that the construction site is clear of equipment and debris.
>
> **Mitigation Measure 4.8-4b**: Regarding the engineered erosion control and drainage plan developed as part of the site grading plan (APM HYDRO-2A), SCE shall conduct a topographic and gradient survey of the Whitewater River Wash both upstream and downstream of the proposed pole(s) replacement location within the wash. Post construction topography and gradient of the Whitewater River Wash shall be contoured to match the existing conditions, to ensure that the drainage pattern is not altered in a manner that would cause on- or off-site erosion or sedimentation.

Significance after Mitigation: Less than Significant.

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h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

Impact 4.8-5: Construction of the Proposed Project would place facilities within a 100-year flood hazard area that could impede or redirect flood water. *Less than significant* (Class III)

The Proposed Project includes the replacement of existing subtransmission and transmission line support poles and towers and upgrades to the Mirage Substation within 100-year flood hazard areas.

The proposed pole and tower replacements would not result in a substantial change to existing structures within the 100-year flood hazard areas such that flood waters would be impeded or redirected, causing flooding hazards at other locations. Moreover, the potential to impede flood flows from the proposed pole and tower replacements would not exacerbate the hazard that currently exists. Impacts from the proposed pole and tower replacements regarding flood water redirection would be less than significant.

The proposed electrical upgrades at the existing Mirage Substation would result in limited site grading, foundation construction, and the installation of substation electrical support components. These components would be constructed outside and mounted to new foundation. There would be no walls, buildings, or other barriers constructed as part of the Proposed Project that would impede or redirect flood waters. A limited amount of water displacement could occur from the mounted electrical components but this displacement would not significantly impede or redirect flood waters. Impacts would be less than significant.

Mitigation: None required.

4.8.5 Cumulative Impacts

This Proposed Project along with other projects occurring in the area would be required to comply with applicable federal, State, and local water quality regulations. The Proposed Project, along with other projects over one acre in size, would be required to obtain coverage under the General Permit. Storm water management measures would be required to be identified and implemented that would effectively control erosion and sedimentation and other construction related pollutants during construction. Other management measures, such as construction of infiltration/detention basins, would be required to be identified and implemented that would effectively treat pollutants that would be expected for the post-construction land use for certain projects.

Construction and operational related stormwater runoff from the Proposed Project would be controlled by the requirements of the NPDES permit. Other new development in the area would also be required to control construction and operational stormwater by implementing State and local requirements regarding hydrology and water quality. Furthermore, the APMs and mitigation measures described above would ensure that the Proposed Project impacts to hydrologic resources and water quality would be less than cumulatively considerable. Therefore, the cumulative impact of the Proposed Project, in combination with other reasonably foreseeable projects, would be less than significant with mitigation (Class II).

4.8.6 Alternatives

No Project Alternative

For the purposes of this analysis, the No Project Alternative includes the following two assumptions: 1) the project would not be implemented and the existing conditions in the study area would not be changed; and 2) new subtransmission and transmission lines and/or additional power generation would be constructed in or near the study area to supply power to the Electrical Needs Area. Given the highly speculative nature of the No Project Alternative assumptions, this analysis is qualitative.

In general, construction associated with the No Project Alternative would likely result in potential impacts that are similar to what would occur under the Proposed Project. If the No Project Alternative would require significantly greater amounts of earth disturbance or result in significantly more new access roads and new ROW, potential impacts from construction and maintenance on water quality would be greater than those associated with the Proposed Project. Nevertheless, with implementation of measures similar to APMs HYDRO-1 through HYDRO-4, impacts would likely be less than significant.

Impacts to local groundwater recharge associated with the No Project Alternative could be higher than those associated with the Proposed Project if the alternative would introduce significantly more impervious services to the study area. However, given the typical nature of transmission infrastructure, it is unlikely that the No Project Alternative would result in a significant unmitigable impact. Additional mitigation could be required however, depending on the extent of such impacts.

Depending on the location of the No Project Alternative, a number of drainages or streams within the study area could be impacted. However, such impacts would likely be mitigable through implementation of APMs and mitigation measures similar to those described above for the Proposed Project.

Similar to the Proposed Project, the No Project Alternative would be unlikely to include facilities that could impede or redirect flood waters associated with a 100-year flood hazard area. However, since the infrastructure required under the No Project Alternative has not been defined, such impacts would need to be evaluated prior to implementation of any project.

Alternative 2

In general, the potential impacts to hydrology and water quality resulting from the implementation of Alternative 2 would be the same as for the Proposed Project. However, some differences in the extent of the potential impacts should be noted.

Alternative 2 would require installation of three miles of underground subtransmission line along Vista Chino and North Sunrise Way. Trenching for the underground portion of the alternative

would require larger construction crews, more equipment usage, and a greater amount of soil disturbance compared to the proposed Farrell-Garnet subtransmission line. As a result, impacts to water quality from construction of Alternative 2 would be higher than those anticipated from the Proposed Project; nevertheless, such impacts would be less than significant due to the implementation of APMs HYDRO-1 through HYDRO-4 (Class III).

While Alternative 2 would require a large amount of trenching, groundwater is not expected to be encountered during the trenching activities given the relatively shallow depth of the trench (five feet). Installation of vaults may require trenching to a depth of up to 10 feet. Given that the depth to groundwater in the study area is approximately 140 feet bgs at its most shallow locations, it is highly unlikely that groundwater seepage would occur from underground line or pole construction. Therefore, dewatering during construction is not anticipated (No Impact).

Installation of the underground subtransmission line associated with Alternative 2 would result in more compacted soil than the Proposed Project. Compacted soil can prohibit precipitation infiltration and affect groundwater reservoirs. However, soil compaction would occur under road surfaces that are currently impermeable. Similar to the Proposed Project, the poles that would be installed under Alternative 2 would not be expected to interfere with groundwater recharge such that there would be a net deficit in aquifer volume (Class III).

As with the Proposed Project, Alternative 2 would cross the Whitewater River. Furthermore, this alternative would also cross Chino Canyon Creek. Therefore, construction activities associated with Alternative 2 could alter an existing drainage pattern in a manner that could result in erosion or sedimentation. However, as with the Proposed Project, implementation of APM HYDRO-1 and HYDRO-2A as well as Mitigation Measures 4.8-4a and 4.8-4b would reduce potential impacts to less than significant (Class II).

The portion of the Alternative 2 alignment located between Chino Canyon Creek and the UPRR would be within a 100-year flood hazard area. However, as with the Proposed Project, pole replacement associated with this segment of Alternative 2 would not exacerbate existing flood hazards and impacts would be less than significant (Class III).

Alternative 3

In general, the potential impacts to hydrology and water quality resulting from the implementation of Alternative 3 would be the same as for the Proposed Project. However, some differences in the extent of the potential impacts should be noted.

Alternative 3 would require installation of 3.6 miles of underground subtransmission line along Vista Chino, North Sunrise Way, San Rafael Drive, and Indian Canyon Drive. Trenching for the underground portion of the alternative would require larger construction crews, more equipment usage, and a greater amount of soil disturbance than the Proposed Project. As a result, impacts to water quality from construction of Alternative 3 would be higher than those anticipated from the Proposed Project; nevertheless, such impacts would be less than significant with implementation of APMs HYDRO-1 through HYDRO-4 (Class III).

While Alternative 3 would require a large amount of trenching, groundwater is not expected to be encountered during the trenching activities given the relatively shallow depth of the trench (five feet). Installation of vaults may require trenching to a depth of up to 10 feet. Given that the depth to groundwater in the study area is approximately 140 feet bgs at its most shallow locations, it is highly unlikely that groundwater seepage would occur from underground line or pole construction. Therefore, dewatering during construction is not anticipated (No Impact).

Installation of the underground subtransmission line associated with Alternative 3 would result in more compacted soil than the Proposed Project. Compacted soil can prohibit precipitation infiltration and affect groundwater reservoirs. However, soil compaction would occur under road surfaces that are currently impermeable. Similar to the Proposed Project, the poles that would be installed under Alternative 3 would not be expected to interfere with groundwater recharge such that there would be a net deficit in aquifer volume (Class III).

As with the Proposed Project, Alternative 3 would cross the Whitewater River. Furthermore, this alternative would also cross Chino Canyon Creek. Therefore, construction activities associated with Alternative 3 could alter an existing drainage pattern in a manner that could result in erosion or sedimentation. However, as with the Proposed Project, implementation of APM HYDRO-1 and HYDRO-2A as well as Mitigation Measures 4.8-4a and 4.8-4b would reduce potential impacts to less than significant (Class II).

The portion of Alternative 3 along Indian Canyon Drive between Chino Canyon Creek and the UPRR would be located within a 100-year flood hazard area. However, as with the Proposed Project, pole replacement would not exacerbate existing flood hazards and impacts would be less than significant (Class III).

Alternative 5

In general, the potential impacts to hydrology and water quality resulting from the implementation of Alternative 5 would be the same as for the Proposed Project. However, some differences in the extent of the potential impacts should be noted.

Alternative 5 would require installation of approximately three miles of underground subtransmission line along Ramon Road, Monterey Avenue, and Varner Road. Trenching for the underground portion of the alternative would require larger construction crews, more equipment usage, and a greater amount of soil disturbance than the proposed Mirage-Santa Rosa subtransmission line. As a result, impacts to water quality from construction of Alternative 5 would be higher than those anticipated from the Proposed Project; nevertheless, such impacts would be less than significant with implementation of APMs HYDRO-1 through HYDRO-4 (Class III).

While Alternative 5 would require a large amount of trenching, groundwater is not expected to be encountered during the trenching activities given the relatively shallow depth of the trench (five feet). Installation of vaults may require trenching to a depth of up to 10 feet; nevertheless, given that the depth to groundwater in the study area is approximately 140 feet bgs at its most shallow

locations, it is highly unlikely that groundwater seepage would occur from underground line or riser pole construction. Therefore, dewatering during construction is not anticipated (No Impact).

Installation of the underground subtransmission line associated with Alternative 5 would result in more compacted soil than the Proposed Project. Compacted soil can prohibit precipitation infiltration and affect groundwater reservoirs. However, soil compaction would occur under road surfaces that are currently impermeable. Similar to the Proposed Project, the riser poles that would be installed under Alternative 5 would not be expected to interfere with groundwater recharge such that there would be a net deficit in aquifer volume (Class III).

Alternative 5 would not be located within a defined river or channel. Therefore, the riser poles that would be required for this alternative would not alter an existing drainage pattern in a manner which would result in a substantial erosion or sedimentation (No Impact).

Alternative 5 would be located in the 100-year flood hazard area of Little San Bernardino Mountain drainage channels. This alternative would be located in the same flood hazard area as the proposed Mirage-Santa Rosa subtransmission line alignment. Impacts from this alternative, relative to impeding or redirecting flood waters would be similar, but less, than the Proposed Project. Impacts would be less than significant (Class III).

Alternative 6

In general, the potential impacts to hydrology and water quality resulting from the implementation of Alternative 6 would be the same as for the Proposed Project. However, some differences in the extent of the potential impacts should be noted.

Alternative 6 would require installation of approximately one mile of underground subtransmission line along Vista Chino between Landau Boulevard and Date Palm Drive. Trenching for the underground portion of the alternative would require larger construction crews, more equipment usage, and a greater amount of soil disturbance compared to the proposed Farrell-Garnet subtransmission line. As a result, impacts to water quality from construction of Alternative 6 would be slightly more than those anticipated under the Proposed Project; nevertheless, such impacts would be less than significant with implementation of APMs HYDRO-1 through HYDRO-4 (Class III).

While Alternative 6 would require trenching to install the underground portion of the subtransmission line, groundwater is not expected to be encountered during the trenching activities given the relatively shallow depth of the trench (five feet). Installation of vaults may require trenching to a depth of up to 10 feet. Given that the depth to groundwater in the study area is approximately 140 feet bgs at its most shallow locations, it is highly unlikely that groundwater seepage would occur from underground line or pole construction. Therefore, dewatering during construction is not anticipated (No Impact).

Installation of the underground subtransmission line associated with Alternative 6 would result in more compacted soil than the Proposed Project. Compacted soil can prohibit precipitation infiltration and affect groundwater reservoirs. However, soil compaction would occur under a road surface that is currently impermeable. Similar to the Proposed Project, the poles that would be installed under Alternative 6 would not be expected to interfere with groundwater recharge such that there would be a net deficit in aquifer volume (Class III).

Alternative 6 would cross the Whitewater River; however, as with the Proposed Project, implementation of APM HYDRO-1 and HYDRO-2A as well as Mitigation Measure 4.8-4a and 4.8-4b would reduce potential impacts to less than significant (Class II).

A small portion of Alternative 6 would be located in the 100-year flood hazard area near the Whitewater River. The Alternative 6 subtransmission line would also cross through the 100-year flood hazard area located along Date Palm Drive between Vista Chino and Varner Road. However, as with the Proposed Project, pole replacement would not exacerbate existing flood hazards and impacts would be less than significant (Class III).

Alternative 7

In general, the potential impacts to hydrology and water quality resulting from the implementation of Alternative 7 would be the same as for the Proposed Project. However, some differences in the extent of the potential impacts should be noted.

Alternative 7 would require a greater amount of pole replacement than the proposed Farrell-Garnet subtransmission line; therefore, impacts to water quality and groundwater supplies during construction of this alternative would be slightly higher than those anticipated from the Proposed Project. Nevertheless, such impacts would be less than significant with implementation of APMs HYDRO-1 through HYDRO-4 (Class III).

Alternative 7 would cross the Whitewater River; however, as with the Proposed Project, implementation of APM HYDRO-1 and HYDRO-2A as well as Mitigation Measure 4.8-4a and 4.8-4b would reduce potential impacts to less than significant (Class II).

A small portion of Alternative 7 would be located in the 100-year flood hazard area near the Whitewater River. Alternative 7 would also cross through the 100-year flood hazard area located along Date Palm Drive between Vista Chino and Varner Road. However, as with the Proposed Project, pole replacement would not exacerbate existing hazards and impacts would be less than significant (Class III).

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