

## **Section 4.8**

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## **4.8 HYDROLOGY AND WATER QUALITY**

This section describes existing conditions and the potential hydrology and water quality impacts associated with the construction and operation of the Proposed Project and alternatives.

### **4.8.1 Applicable Laws, Regulations, and Standards**

#### **4.8.1.1 Federal**

##### **Clean Water Act**

The Clean Water Act (CWA) regulates the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. These waters include the "waters of the United States," which means all navigable waters and tributaries thereto and adjacent wetlands. Any activity, that results in the deposit of dredge or fill material within the ordinary high-water mark of waters of the U.S., usually requires a permit, even if the area is dry at the time the activity takes place. Permits issued by the USACE would require the state to issue a certificate pursuant to CWA Section 401 that the Proposed Project complies with state water quality standards.

Additionally, the CWA established national water-quality goals. The objective of the CWA is to eliminate pollution from the nation's waters by imposing uniform standards on all municipal and industrial wastewater sources, based on the best available technology. The CWA created a permitting system that specifies minimum standards for the quality of discharged waters. It requires states to establish standards specific to water bodies and designate the types of pollutants to be regulated, including total suspended solids and oils. California has been authorized to implement this portion of the CWA, which created programs for stormwater and construction discharge permits that may be applicable to the Proposed Project.

#### **4.8.1.2 State**

##### **Porter-Cologne Water Quality Act – Water Code**

The Porter-Cologne Water Quality Control Act (Porter-Cologne) provides a comprehensive water quality management system for the protection of California waters. Porter-Cologne designates the State Water Resources Control Board (SWRCB) as the ultimate authority over state water rights and water quality policy and also establishes nine Regional Water Quality Control Boards (RWQCB) to oversee water quality on a day-to-day basis at the local/regional level. The SWRCB and RWQCBs have the responsibility of granting permits for certain point-source discharges, and for construction and stormwater runoff, and either waste discharge requirements or conditioned water quality certification for other discharges.

The SWRCB and RWQCBs are responsible for developing and implementing regional basin plans to regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. Basin plans are prepared by the RWQCBs to establish water quality standards for both surface and groundwater bodies within their respective jurisdictions. Specifically, basin plans designate beneficial uses for surface and groundwater, set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses, and describe implementation programs to protect all waters in the region.

The RWQCBs regulate discharges in waters within their respective jurisdictions through the administration of National Pollution Discharge Elimination System (NPDES) permits, waste discharge requirements, and water quality certification. Water quality certification is administered by the RWQCBs to ensure that projects with federal permits do not violate state water quality standards.

### **State General Stormwater Permit**

In response to CWA requirements, the State of California has adopted a general stormwater permit covering non-point-source discharges from certain industrial facilities and from construction sites involving more than 1 acre. The General Permit requires the preparation of a stormwater pollution prevention plan (SWPPP) and implementation of BMPs to reduce the potential for non-stormwater pollutants (chemicals and sediment) to be discharged from the construction site to waters of the state.

### **California Fish and Game Code, Sections 1600-1603**

This statute regulates activities that would “substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of a natural watercourse” that supports fish and wildlife resources. A stream is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. The CDFG’s jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. A Streambed Alteration Agreement must be obtained for any project that would result in adverse impacts to a river, stream, or lake.

#### **4.8.1.3 Local Regulations**

The SWRCB adopted a new Construction Activities General Permit (WQ Order No. 99-08DWQ) on August 19, 1999. This permit is administered and enforced by the SWRCB and the local RWQCB. The updated Construction Activities General Permit establishes a number of new storm water management requirements for construction site operators.

The Santa Ana RWQCB manages water quality issues in the Whitewater River Watershed.

#### **4.8.2 Significance Criteria**

Impacts to hydrology and water quality are considered potentially significant if the project would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Otherwise substantially degrade water quality
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam
- Expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow

#### **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, the following APMs would be implemented.

**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.

**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.

**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.

**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.

**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.

**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 Environmental Setting**

The Proposed Project is located primarily in the City of Palm Springs and the unincorporated community of Thousand Palms, California, in Riverside County. Additional elements of the Proposed Project are located in the nearby cities of Rancho Mirage, Cathedral City, and Palm Desert, in Riverside County.

The City of Palm Springs is generally bounded to the north by open desert and the Whitewater River drainage and to the west by the San Jacinto and Santa Rosa mountains. The Whitewater River flows southeast from Mount San Gorgonio into the sink formed by the Salton Sea. The major tributaries of the Whitewater River include Tahquitz Creek, Palm Canyon Wash, Chino Canyon Wash, Snow Creek Canyon Wash, and Mission Creek (City of Palm Springs General Plan 2006). Each of these drainage channels empties into the Whitewater River drainage. The Whitewater River is not considered a jurisdictional water of the U.S.

Drainage channel alignment, design, and construction in the area are the responsibility of the Riverside County Flood Control and Water Conservation District and the Coachella Valley Water District (CVWD). The 100- and 500-year floodplain boundaries in the project area are shown on Figure 4.8: Surface Water and FEMA (Federal Emergency Management Agency) Floodplains.

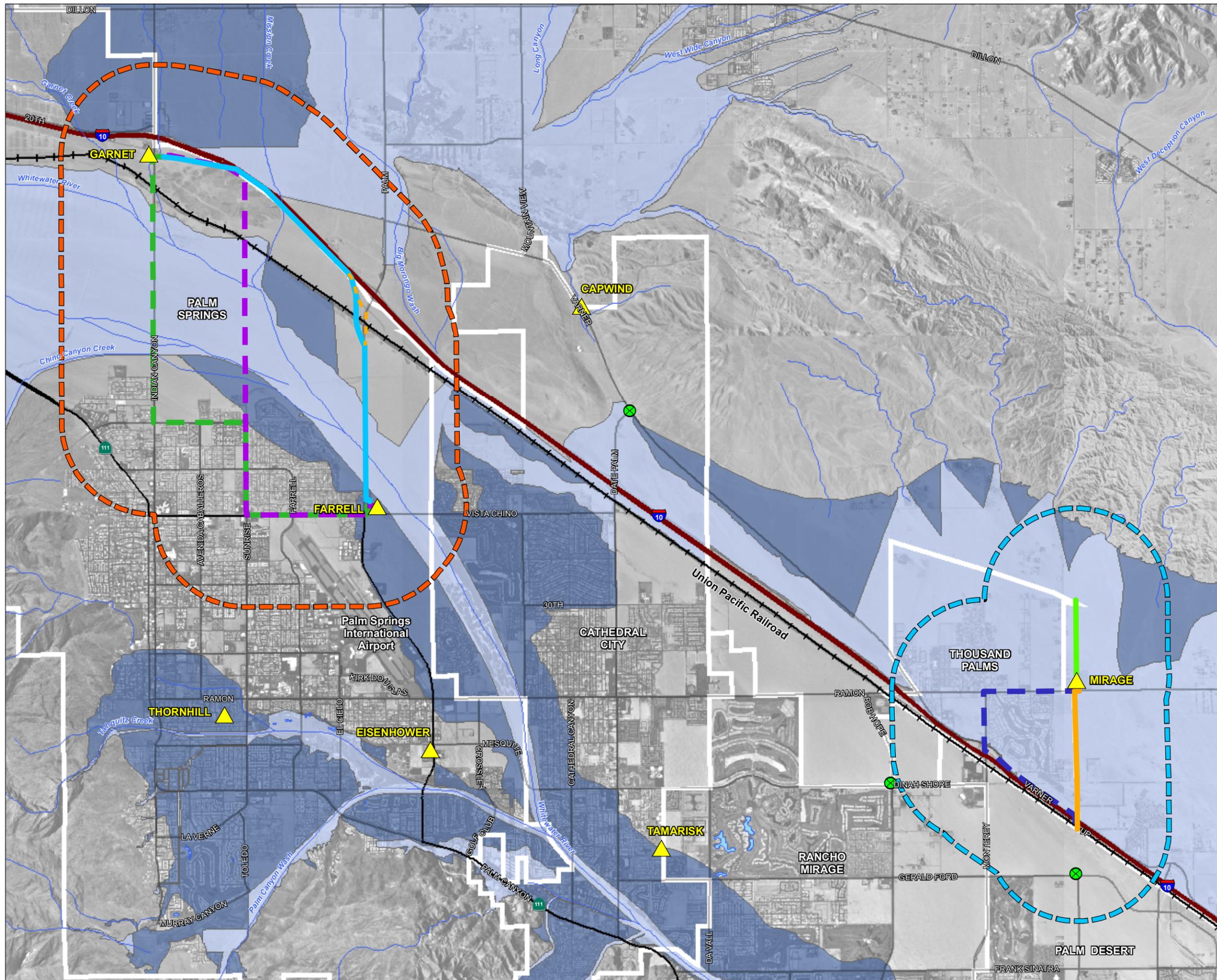
##### **4.8.4.1 Precipitation**

Climatic conditions for Riverside County are typical of inland areas of Southern California. The climate is dry, with an average annual precipitation in the project area, ranging from 4 to 6 inches per year from the desert floor into the foothills and averaging about 5 to 6 inches along the Little San Bernardino Mountains. Record low and high rainfall in Riverside County are 5.3 inches and 21.4 inches, respectively.

##### **4.8.4.2 Groundwater**

The agencies responsible for supplying water for the Coachella Valley include the City of Palm Springs, CVWD, and Desert Water Agency (DWA). Development east and north of the Whitewater River, including the Thousand Palms community, occurs within the service boundaries of the CVWD, and development west and south of the river occurs within the service boundaries of the DWA. These agencies utilize wells to extract groundwater from the

**Figure 4.8**  
**Surface Water and**  
**FEMA Floodplains**



**LEGEND**

- Farrell - Garnet Project Area
- Mirage - Santa Rosa Project Area
- Proposed Project**
- SCE Substations - Proposed Modification
- Subtransmission Line Reconfiguration
- Farrell-Garnet 115kV Route #1
- Mirage-Santa Rosa 115kV Route #4
- Devers-Coachella 220 kV Loop In
- Alternative Subtransmission Line Routes**
- Farrell-Garnet 115 kV Route #1 Option A
- Farrell-Garnet 115 kV Route #2
- Farrell-Garnet 115 kV Route #3
- Mirage-Santa Rosa 115 kV Route #5
- Flood Zone (FEMA, 2005)**
- 100-Year Flood Zone
- 500-Year Flood Zone
- Water Features (TBM, 2006)**
- Lake
- Drainage
- Transportation (TBM, 2006)**
- Interstate Highway
- State Highway
- Major Road
- Railroad
- City/Community Boundary



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Project ID: 2006LE7177  
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Corporate Real Estate Department  
Real Estate Operations  
Survey and Mapping



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Whitewater River subbasin (City of Cathedral City General Plan/Water Resource Element IV-38). It was not until the twentieth century that the enormous extent of the groundwater basin underlying the Coachella Valley was recognized. Analysis of groundwater repositories by the USGS and the California Department of Water Resources has determined that the subsurface aquifer is separated into distinct subbasins, which are further divided into subareas. The boundaries between these structures are generally defined by fault barriers, constrictions in basin profiles, and the unique hydrologic characteristics of each subbasin or subarea (City of Cathedral City General Plan/Water Resource Element 2002).

The Coachella Valley Groundwater Basin supplies most of the water to the City of Palm Springs for both domestic and irrigation water (City of Palm Springs General Plan II-4). The Whitewater River subbasin is the primary groundwater repository for the Coachella Valley and the community of Thousand Palms. Encompassing a major portion of the valley floor, it covers approximately 400 square miles and extends from the junction of I-10 (City of Cathedral City General Plan/Water Resource Element 2002).

The subbasin is divided into four distinct subareas, including Palm Springs, Thermal, Thousand Palms, and Oasis. The Palm Springs subarea underlies most of the city, including lands generally located west of Date Palm Drive. Lands generally east of Date Palm Drive are underlain by the upper Thermal subarea (City of Cathedral City General Plan/Water Resource Element IV-39). The northernmost portion of the project area, including lands north of I-10 and south of Indio Hills, is underlain by the Thousand Palms subarea. Water quality in the Coachella Valley is generally good to excellent (City of Palm Springs General Plan 2006).

The Palm Springs subarea contains approximately 4.6 million acre-feet of groundwater in storage and is largely composed of alluvial fan deposits. The subarea is recharged by infiltration and runoff from the San Jacinto Mountains and the Whitewater River (City of Cathedral City General Plan/Water Resource Element IV-39). The depth to groundwater reported in the vicinity of the Garnet Substation (in 1999) is 224.9 feet below ground surface (California Department of Water Resources 2007).

The Thousand Palms subarea extends along the southerly edge of Indio Hills. Its southwestern boundary has been determined based on its distinctive groundwater chemical characteristics. Water in the Thousand Palms subarea is characterized by high concentrations of sodium sulfate, while water in other subareas is generally characterized by calcium bicarbonate. The subarea is recharged by limited runoff from Indio Hills and experiences little, if any, inflow from other subareas or subbasins. Since there is little opportunity for intermixing or “dilution” by water of different chemical compositions, the native sodium sulfate is present in greater concentrations in the Thousand Palms subarea (City of Cathedral City General Plan/Water Resource Element 2002). The depth to groundwater reported in the vicinity of Mirage Substation (in 2001) is 120 feet below ground surface (Sneed et al. 2001).

#### **4.8.4.3 Surface Water**

The Proposed Project lies within the Whitewater River Watershed. The important surface water areas (see Figure 4.8: Surface Water and FEMA Floodplains) crossed by the project include the Whitewater River drainage (crossed by the Proposed Farrell-Garnet 115 kV Subtransmission Line [Route 1] and Alternative Routes 2 and 3), Mission Creek (crossed by the Proposed

Farrell-Garnet 115 kV Subtransmission Line [Route 1]), and Chino Canyon Creek (spanned by the Farrell-Garnet Alternative Routes 2 and 3).

#### **4.8.4.4 Flooding Potential**

FEMA is responsible for mapping the areas that are predicted to flood during 100-year and 500-year storm events. Flood hazard zones are identified by FEMA on Flood Insurance Rate Maps. The maps indicate the estimated level of inundation under various conditions and intensities. Portions of the Proposed Project are located within the 100- and 500-year floodplain boundaries as shown on Figure 4.8: Surface Water and FEMA Floodplains.

Most flooding problems experienced in the City of Palm Springs are related to a rise in the water level of the Whitewater River and its tributaries, storm flooding on the alluvial fans, and runoff associated with the foothills of the Little San Bernardino Mountains. The Whitewater River could flood in a severe storm, and the Proposed Project is within the river's 100- and 500-year flood zone boundaries. The Whitewater River rarely threatens the entire City of Palm Springs, but SR 111 and I-10, which run adjacent to portions of the Proposed Project, are subject to closure and damage in flood situations. Portions of the Proposed Farrell-Garnet 115 kV Subtransmission Line Route 1, and Alternatives 2 and 3 cross both the 100- and 500-year storm boundaries for the Whitewater River.

The Thousand Palms community has experienced major flooding problems in recent years. In response to these issues, the USACE and CVWD have proposed the Whitewater River Basin Thousand Palms Flood Control Project to protect residents from 100-year storm threats. The flood control project will be located near the Proposed Devers-Coachella Valley 220 kV Loop-In and the Proposed Mirage-Santa Rosa 115 kV Subtransmission Line (Route 4). The flood control project will remove 2,800 acres of land and over 9,600 residents from the threat of flood by redirecting an alluvial floodplain, where devastating flash flooding has occurred, and will preserve a long-term sand supply for the endangered Coachella Valley Fringe-toed Lizard. The flood control project will take 2 to 3 years to construct. The flood control design consists of a series of earthen levees and channels, which would convey the flood flows away from the Thousand Palms area. Flood flows ultimately would join with the Whitewater River/Coachella Valley Storm Channel, which, in turn, conveys the flows into the Salton Sea (USACE 2006). The Mirage-Santa Rosa 115 kV Subtransmission Line Routes 4 (Proposed) and 5, as well as the Proposed Devers-Coachella Valley 220 kV Loop-In, are located completely within a 100-year flood boundary zone.

Of the proposed subtransmission line reconfigurations located separately from the two proposed subtransmission line routes, only the Date Palm Drive/Varner Road intersection is located within the 100- and 500-year floodplain boundaries.

Under the Proposed Project, several existing substations would require modifications within the substation fences and walls. Farrell Substation would require the construction of a new driveway and is within the 500-year floodplain boundary. Mirage Substation falls within the 100-year flood boundary.

## **4.8.5 Impact Analysis**

### **4.8.5.1 Construction Impacts**

SCE would file a Notice of Intent (NOI) to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit would include the development and implementation of a SWPPP. SCE would conduct all construction activities under the terms and conditions of the SWPPP. Implementation of the SWPPP would help stabilize graded areas and waterways and reduce erosion and sedimentation. The construction SWPPP would identify BMPs to be implemented during construction activities. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities.

Construction of the Proposed Project would involve the use of a variety of potential sources of water quality degradation, such as diesel fuel, lubrication oil, hydraulic fluids, antifreeze, and other construction-related materials. If unchecked, these contaminants could be carried by runoff into local drainages. The possibility of either accidental releases or normal discharges from construction equipment and tools, and in turn their introduction into local drainage and water systems, would be minimal with implementation of SCE standard control procedures. The potential for significant effects to water quality would be avoided through implementation of APMs, BMPs, and compliance with permit conditions. Implementation of the APMs and BMPs and permit condition compliance would reduce the potential impacts to surface water to less than significant levels and would not violate water quality standards or waste discharge requirements.

The Proposed Project would not create substantial amounts of new impermeable surfaces that could reduce groundwater absorption rates. The Proposed Project would not include any facilities that would use groundwater and would therefore not deplete groundwater supplies. The Proposed Project would not 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.

The Proposed Farrell-Garnet 115 kV Subtransmission Line (Route 1) would require pole replacement within the Whitewater River drainage. However, there would be no measurable change to the amount of existing ground disturbance within the drainage. The Proposed Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site. The Proposed Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The Proposed Devers-Coachella Valley 220 kV Loop-In and the Proposed Mirage-Santa Rosa 115 kV Subtransmission Line (Route 4) would not be located within the Whitewater River drainage.

SCE would obtain a ministerial grading permit from the City of Palm Springs, if needed, to grade the new driveway at Farrell Substation. Application for and receipt of a ministerial grading permit from the City of Palm Springs would be preceded by preparation of a soils engineering and geology report as well as a project specific grading plan. Construction activities conducted when

the ground is wet would accelerate the potential for increased runoff, due to a reduction in infiltration and evaporation. SCE would implement BMPs, APMs (HYDRO-1 and HYDRO-2), and SWPPP conditions to prevent transport of excavated sediments to local waterways and would thereby avoid significant effects to water quality. APM HYDRO-3 is intended to avoid significant impacts to water quality from construction of the access roads on the Mirage 220 kV ROW, as described in Chapter 3, Project Description. SCE also would implement all other erosion control measures, BMPs, applicable permit conditions, and APMs to protect water quality during construction of the driveway and access roads and avoid significant effects. In summary, impacts to water quality due to the construction of the driveway and access roads would be less than significant with the implementation of APMs.

The Proposed Project would not cause rerouting of drainage in the area. Any erosion would be managed through BMPs, applicable permit conditions, and APMs. The Proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

The Proposed Project would not place structures within a 100-year or 500-year flood hazard area that could impede or redirect flood flows and would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. The Proposed Farrell-Garnet 115 kV Subtransmission Line (Route 1) would span the Whitewater River drainage and Mission Creek, and, therefore, portions of the line could be subject to flood damage if the river were to flood (City of Palm Springs General Plan III-3). The Proposed Devers-Coachella 220 kV Loop-In and the Proposed Mirage-Santa Rosa 115 kV Subtransmission Line (Route 4) also fall within a 100-year floodplain boundary, and, therefore, portions of the line could be subject to flood damage if the area were to flood. However, the Whitewater River Basin Thousand Palms Flood Control Project is designed to reduce the potential for flooding in the area.

- The Proposed Project would not expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow.

In summary, impacts to hydrology and water quality due to the construction of the Proposed Project would be less than significant with the implementation of BMPs, APMs, and SWPPP conditions.

#### **4.8.5.2 Operational Impacts**

SCE is required to visually inspect its facilities at least once a year by driving the line routes. Occasional maintenance would be required, but maintenance work would not likely require ground disturbance that could cause erosion and sedimentation. Maintenance vehicles would use existing access roads. In summary, operation of the Proposed Project would not likely affect water quality. Project operation would not violate water quality standards or discharge requirements or impact water quality in nearby drainages.

The operation of additional substation equipment associated with the Proposed Project and the construction of the Farrell Substation driveway would not change drainage patterns and would not increase erosion at the substation sites. Operation of the substation improvements would not require use of groundwater. In summary, operation of the existing substations associated

with the Proposed Project would have no impact on water quality and would not affect drainage patterns or runoff.

#### **4.8.6 Alternatives**

##### **4.8.6.1 Farrell-Garnet 115 kV Subtransmission Line Alternative Routes 2 and 3**

Construction of the Farrell-Garnet 115 kV Subtransmission Line Route Alternative 2 would require trenching to underground approximately 0.5 mile of 115 kV subtransmission line. Alternative 3 would not require trenching. The alternative routes would have erosion, water quality, drainage, and groundwater impacts similar to those of the Proposed Project. All APMs related to the proposed subtransmission line would apply to Alternatives 2 and 3. Due to the additional ground-disturbing activities that would be required for construction of the underground portion of Alternative 2, potential impacts to hydrology and water quality might be greater with this route than that of the Proposed Project. In summary, impacts to hydrology and water quality due to the construction and operation of Alternatives 2 and 3 would be less than significant with the implementation of APMs.

##### **4.8.6.2 Mirage-Santa Rosa 115kV Subtransmission Line Alternative Route 5**

Construction of the Mirage-Santa Rosa 115 kV Subtransmission Line Alternative Route 5 would require trenching to underground approximately 1.9 miles of 115 kV subtransmission line. The alternative route would have erosion, water quality, drainage, and groundwater impacts similar to those of the Proposed Project. All APMs related to the proposed subtransmission line route would apply to Alternative 5. Due to the additional ground-disturbing activities that would be required for construction of the underground portion of Alternative 5, potential impacts to hydrology and water quality might be greater with this route than that of the Proposed Project. In summary, impacts to hydrology and water quality due to the construction and operation of Alternative 5 would be less than significant with the implementation of APMs.

#### **4.8.7 References**

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