**Chapter 3**

**Project Description**

This section provides a detailed description of Southern California Edison Company’s (SCE) Valley South 115 kilovolt (kV) Subtransmission Project (Proposed Project).

**3.1 Project Location**

The Proposed Project is located in Southern California in southwestern Riverside County (see Figure 1.1 Proposed Project Location). The proposed 115 kV subtransmission line would be oriented primarily north to south in the Project Study Area located within the ENA (see Figure

1.2 Electrical Needs Area) within southwestern Riverside County. The proposed 115 kV subtransmission line would extend from SCE’s existing Valley 500/115 kV Substation located on Menifee Road immediately south of State Route (SR-74) in the City of Menifee. The proposed 115 kV subtransmission line would traverse the northeastern portion of the city and extends south along Leon Road west of SR-79 to the south side of Benton Road. The proposed 115 kV subtransmission line would continue in a southerly direction paralleling Leon Road in southwestern Riverside County east of SR-79 into the City of Temecula terminating at the tubular steel pole (TSP), hereinafter referred to as the Terminal TSP, on the south side of Nicolas Road approximately 0.21 of a mile west of SCE’s 115/12 kV Triton Substation. Additionally, SCE may utilize an existing material staging yard in the City of Perris.

**Geographical Location**: The Proposed Project is located within the cities of Menifee, Murrieta, Temecula, and portions of unincorporated communities of southwestern Riverside County (see Figure 1.2 Electrical Needs Area).

**General Land Use** : The existing land uses along the proposed 115 kV subtransmission line include electrical facilities, agriculture, vacant land, drainage basin, railroad, open space, public utilities, commercial, industrial park, and residential (see Section 4.10, Land Use and Planning, for additional land use information).

**Property Description**: The proposed facilities would be constructed primarily within existing SCE easements and fee-owned property, and public franchise areas. Based upon final engineering, some new easements and permits may be acquired to accommodate the facilities. The modifications proposed at SCE’s existing Valley 500/115 kV Substation would be constructed within existing SCE fee-owned property (see Section 3.6 for further detail).

# Existing System

The Valley South 115 kV System is currently comprised of six 115 kV subtransmission source lines from Valley Substation and thirteen 115/12 kV distribution substations. The Proposed Project’s ENA is a portion of the Valley South 115 kV System and is primarily provided service through three 115 kV subtransmission source lines (Valley-Sun City, Valley-Auld, and Valley-

Auld-Triton). Within the ENA are eight 115/12 kV distribution substations (Sun City, Auld, Triton, Pauba, Pechanga, Moraga, Stadler, and Tenaja). Each of the distribution substations have distribution circuits, which originate from the substations to serve the surrounding customers. Figure 3.1-A Existing Valley South 115 kV System Configuration depicts the existing configuration. Figure 3.1-B Proposed Valley South 115 kV System Configuration depicts the proposed Valley South 115 kV System. Figure 3.2 Subtransmission Source Line Route Description depicts the portion of the Valley South 115 kV System relevant to the ENA that would exist after completion of the Proposed Project.

# Project Objectives

As described above in Chapter 2, Project Purpose and Need and Objectives, the Proposed Project is being proposed to meet the following objectives:

* + - Provide safe and reliable electrical service
    - Add capacity to serve long-term forecasted electrical demand requirements in the ENA as soon as possible after receipt of applicable permits
    - Maintain or improve system reliability and provide greater operational flexibility within the ENA
    - Meet Proposed Project needs while minimizing environmental impacts
    - Design and construct the Proposed Project in conformance with SCE’s approved engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects

# Proposed Project

The Valley South 115 kV Subtransmission Project includes the following elements:

* + - Modification of SCE’s existing Valley 500/115 kV Substation would include equipping an existing 115 kV line position and providing protection equipment as required.
    - Construction of a new 115 kV subtransmission line originating at SCE’s existing Valley 500/115 kV Substation and connecting at a TSP, which is located at the southeast corner of Leon Road and Benton Road. The TSP is the common point of the three-terminal existing Valley-Auld-Triton 115 kV Subtransmission Line. The new construction and associated reconfiguration would result in the formation of the Valley-Auld No. 2 and Valley-Triton 115 kV Subtransmission Lines. The new 115 kV subtransmission line would be approximately 12 miles in length and is referred to as Segment 1 of the Proposed Project (see Figure 3.8 Segment 1 & Segment 2 Locations).
    - Replacement of a segment of overhead conductor of the existing Valley-Auld-Triton 115 kV Subtransmission Line beginning at the TSP located at the southeast corner of Benton Road and Leon Road continuing south to the Terminal TSP located on the south side of Nicolas Road, approximately 250 feet west of Los Chorus Ranch Road in the City of Temecula. This reconductor segment is approximately 3.4 miles in length and is referred to as Segment 2 for the Proposed Project.
    - Relocation of existing distribution and telecommunication lines would be required to support the installation of Segments 1 and 2 for the new 115 kV subtransmission line.
    - Installation of telecommunication equipment at Triton and Valley Substations would support Segments 1 and 2 for the new 115 kV subtransmission line.

The Proposed Project description is based on planning-level assumptions. Exact details would be determined following completion of final engineering, identification of field conditions, availability of labor, material, and equipment, and compliance with applicable environmental and permitting requirements.

Additionally, as it relates to each of the project components, the Project Description utilizes conservative ground disturbance assumptions based on preliminary engineering to estimate surface area disturbance. This expanded surface area disturbance is provided for the purpose of ensuring the environmental analysis included in Chapters 4.0 through 6.0 sufficiently analyzes the potential environmental impacts of conservative ground disturbance assumptions. The actual surface area disturbance is expected to be reduced following completion of final engineering.

## 3.4.1 Project Capacity

The Valley South 115 kV Subtransmission System is a network of 115 kV power lines that provide electrical service to the distribution substations including those located within the ENA. The amount of electrical power that can be delivered to the ENA is primarily limited to the maximum amount of electrical demand that the Valley-Sun City, Valley-Auld, and Valley-Auld- Triton 115 kV Subtransmission Lines can provide before any individual subtransmission line operating capacity limit is exceeded. Each of the 115 kV subtransmission lines providing service to the ENA has operating limits of 218 mega volt-amperes (MVA) under normal system conditions and 294 MVA under abnormal system conditions.

SCE’s annual system studies are performed to ensure that there is adequate capacity to provide service during peak electrical demand periods both under normal system conditions and under specific abnormal system conditions. Power flow studies of a network of lines evaluate the specific power flows that occur on the lines within the network and the power flow values that result are dictated by the electrical demand values of the distribution substations served by the lines and the characteristics of the power lines themselves (e.g., impedance of the lines). When studies determine there is insufficient capacity to provide service and prevent overloads from occurring, a project is identified to address the projected overload and stay within specified operating limits.

Currently, under a normal system configuration, the ENA of this Proposed Project is primarily served by three 115 kV source lines originating from Valley Substation (Valley-Sun City, Valley-Auld, and Valley-Auld-Triton) and share the electrical demand required to serve the distribution substations. Though the three lines do not all terminate at the same locations, each of the three ultimately deliver power to the distribution substations in the ENA and not all of the power flowing into a particular substation is delivered only to that substation. For example, the Valley-Sun City 115 kV Subtransmission Line (under a normal system configuration) carries more power than is required just for Sun City Substation. Sun City Substation is just the first point-of-delivery and the balance of the power continues on past Sun City Substation and goes on into the network to provide service to other downstream substations, such as Auld and Moraga Substations. This is true of the other 115 kV subtransmission lines in the network as well.

Under specific abnormal (N-1) system conditions (e.g., loss of one of the three primary source 115 kV subtransmission lines: Valley-Sun City, Valley-Auld, or Valley-Auld-Triton), the ENA of this Proposed Project would be served by only two of the three identified primary 115 kV subtransmission source lines originating from Valley Substation. Those two remaining in-service lines would share the electrical demand required to serve the distribution substations just like

under a normal system configuration with the only difference being that the same amount of electrical demand would then be shared between only two lines rather than three. Under abnormal system conditions, the remaining in-service lines are allowed to be operated at a higher rating for a specific period of time. This higher rating (each of three lines has an emergency rating of 294 MVA) is the value against which the power flow study results are measured when evaluating the system performance and adequacy under abnormal (N-1) conditions.

SCE has identified that under specific abnormal system conditions (loss of one of the three primary 115 kV source lines) the emergency condition operating capacity limits of the two remaining in-service 115 kV subtransmission lines would be exceeded. By constructing the Proposed Project, the electrical demand would be shared between four lines under normal conditions and between three lines under abnormal conditions. Thus, within SCE’s 10-year planning horizon (2014-2023) under both normal and abnormal system conditions, none of the four primary 115 kV subtransmission source lines that would serve the ENA of the Proposed Project are projected to be overloaded because the electrical demand would be shared between more lines. SCE has not identified any future work or phases in addition to the scope of work described above as the components of the Proposed Project.

# Project Components

The components of the Proposed Project are described in more detail in the following subsections.

## Transmission

*This section is not applicable to the Proposed Project.*

## Transmission Voltage kV Transmission Line Description

*This section is not applicable to the Proposed Project.*

## 115 kV Subtransmission Line Description

The Proposed Project would include the following 115 kV subtransmission line elements:

Segment 1 of the new 115 kV subtransmission line route would originate at SCE’s existing Valley 500/115 kV Substation and would connect at a replacement TSP on the southeast corner of Benton Road and Leon Road, as shown in Figure 3.2 Subtransmission Source Line Route Description.

The new 115 kV subtransmission line would exit Valley Substation southeasterly on a private road (SCE access road/farm road) between Menifee Road and Briggs Road underground for approximately 1,600 feet in a new duct bank that would consist of three new subtransmission vaults, and new underground 115 kV cables.

The new 115 kV subtransmission line would rise to an overhead position via a riser TSP that would be located on a private road. To accommodate this overhead transition of the new 115 kV subtransmission line at this location, approximately five existing light weight steel (LWS) poles would need to be removed and replaced with one new riser TSP and two LWS poles.

The existing pole heads would be reconfigured on the existing SCE subtransmission facilities to accommodate the new 115 kV overhead conductors (double circuiting the existing poles) for approximately 1 mile (along private road) from the new riser TSP to the T-intersection of Briggs Road and McLaughlin Road. Additional construction would include removal of and installation of one wood guy stub pole and modification of two existing TSPs. The new 115 kV subtransmission line would then extend south on Briggs Road to the intersection of Briggs Road and Matthews Road; this would require existing pole heads to be reconfigured to accommodate the new 115 kV conductors (double circuiting of existing poles) on existing SCE subtransmission facilities and the installation of two TSPs.

At the intersection of Briggs Road and Matthews Road, the new 115 kV subtransmission line would continue easterly for approximately 1 mile to the intersection of Leon Road and Grand Avenue, requiring the installation of the new 115 kV conductors on the SCE subtransmission facilities. Additional construction would include the removal of approximately 27 wood poles and 2 wood guy stub poles to be replaced with approximately 26 wood poles, 1 wood guy stub pole, and three TSPs.

The new 115 kV subtransmission line would continue single circuit south from the intersection of Leon Road and Grand Avenue for approximately 9 miles to the intersection of Benton Road and Leon Road requiring the installation of new 115 kV conductors, approximately 23 TSPs, approximately 8 LWS poles, approximately 215 wood poles and approximately 19 wood guy stub poles.

The new 115 kV subtransmission line would be approximately 12 miles in length from Valley Substation in the City of Menifee to the intersection of Leon Road and Benton Road in Riverside County, east of the City of Murrieta. The new 115 kV subtransmission line would form Segment 1 of the Proposed Project.

Segment 2 of the Proposed Project would begin at the intersection of Benton Road and Leon Road and continue southerly on Leon Road to the existing Terminal TSP on Nicolas Road. Construction would include removal of approximately 3.4 miles of 653 thousand circular mil (kcmil) aluminum conductor steel-reinforced (ACSR) and reconductor installation with non- specular 954 kcmil stranded aluminum conductor (SAC).

Structure removal and replacement construction would consist of approximately one TSP located at the southeast corner of Benton Road and Leon Road, one wood guy stub pole located on the west side of Leon Road at the Allen Road intersection and two wood poles located approximately 250 feet and 400 feet north of Nicolas Road. The transfer of three existing 954 kcmil SAC conductors would be required at structure replacement locations.

New construction would include one wood guy stub pole located on the north side of Benton Road approximately 90 feet west of Leon Road. Additionally, one existing LWS pole (located on

the south side of Benton Road approximately 90 feet west of Leon Road) would include pole head reconfiguration from existing back-to-back post insulator construction to double dead-end arm construction (see Figure 3.2 Subtransmission Source Line Route Description). Based on preliminary engineering, an approximate combined total of 81 existing wood, LWS and TSP structures would not require structure replacement. Segment 2 of the Proposed Project is an existing double-circuit 115 kV subtransmission line approximately 3.4 miles in length.

The 115 kV subtransmission structures would support polymer dead end/suspension insulators measuring approximately 48 inches and/or polymer post insulators measuring approximately 60 to 62 inches. Additionally, non-specular 954 kcmil SAC would be installed as the new 115 kV subtransmission conductor. Existing fault return conductor (FRC) would be transferred to the new subtransmission LWS structures or a minimum 4/0 ACSR FRC would be installed as required.

## Telecommunications Description

Telecommunications infrastructure would be added to connect the Proposed Project to SCE’s telecommunications system and would provide Supervisory Control and Data Acquisition, protective relaying, data transmission, and telephone services for the Proposed Project and associated facilities.

Installation of new telecommunication infrastructure would provide protective relaying services for the new 115 kV subtransmission line. Channel equipment will be installed in the existing Mechanical and Electrical Equipment Rooms (MEER) at the existing Valley and Triton Substations. This equipment interfaces between the relay and the optical transmission equipment, also housed in the MEER. All new communication equipment installations at the existing substations would occur within the existing MEER; therefore, no additional ground disturbance is associated with this proposed work inside the existing substations.

## Distribution Description

*This section is not applicable to the Proposed Project.*

## Poles/Towers

* + - 1. **Transmission Poles/Towers**

*This section is not applicable to the Proposed Project.*

## 115 kV Subtransmission Poles/Towers

The subtransmission segments of the Proposed Project would utilize wood poles, LWS poles, TSPs and wood guy stub poles. The approximate dimensions of the proposed structure types are shown in Figure 3.3 Typical Subtransmission Structures and summarized in Table 3.1 Typical Subtransmission Structures to be Installed.

The 115 kV subtransmission structures would be designed consistent with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (Avian Power Line Interaction Committee, 2006).

## Table 3.1 Typical Subtransmission Structures to be Installed

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pole Type** | **Proposed Number of**  **Structures** | **Approximate Height Above Ground**  **(Feet)** | **Approximate Pole Base Diameter**  **(Feet)** | **Approximate Auger Hole Depth**  **(Feet)** | **Approximate Auger Diameter**  **(Feet)** |
| Wood Poles | 243 | 65 to 85 | 2 to 3 | 9 to 12 | 2 to 4 |
| LWS Poles | 12 | 74 to 99 | 2 to 3 | 10 to 13 | 3 to 4 |
| TSP | 30 | 75 to 115 | 2 to 5 | N/A | N/A |
| TSP  Concrete Foundations | 30 | 0 to 4 | N/A | 20 to 40 | 5 to 9 |
| Wood Guy Stub Poles | 23 | 38 to 48 | 1 to 2 | 6 to 8 | 1 to 3 |

Approximately 243 wood poles would be used for the Proposed Project. Wood poles would be direct buried to a depth of approximately 9 to 12 feet below the ground surface and extend approximately 65 to 85 feet above the ground. The diameter of the wood poles would be approximately 2 to 3 feet at ground level and would taper to the top of the pole.

Approximately 12 LWS would be used for the Proposed Project. Lightweight steel poles would be direct buried to a depth of approximately 10 to 13 feet and extend approximately 74 to 99 feet above ground. The diameter of LWS poles would typically be 2 to 3 feet at ground level and tapers to the top of the pole.

A FRC would be transferred and/or upgraded, and installed on the new LWS subtransmission structures as required. Where a new FRC is required, a minimum 4/0 ACSR FRC would be installed between the LWS pole spans and attached to each LWS pole as shown in Figure 3.3 Typical Subtransmission Structures.

Approximately 23 new wood guy stub poles would be used for the Proposed Project. Wood guy stub poles would be direct buried to a depth of approximately 6 to 8 feet below ground and extend approximately 38 to 48 feet above ground. The diameter of wood guy stub poles would typically be 1 to 2 feet at ground level and would taper to the top of the pole. Where mechanical loads to be imposed on the poles are greater than can be safely supported by the poles, additional strength shall be provided by the use of guy wires and anchors. Span guy wire would be attached between the line pole and guy stub pole. The down guy wires would be attached to the wood guy stub pole and a 10-foot anchor rod(s), which has been installed in the ground.

Approximately 30 TSPs would be used for the Proposed Project. The TSPs would be approximately 2 to 5 feet in diameter at the base and extend approximately 75 feet to 115 feet above ground. The TSPs would be attached to concrete foundations that would be approximately 5 to 9 feet in diameter and would extend underground approximately 20 to 40 feet with up to approximately 0 to 4 feet of concrete visible above ground. Each TSP would use approximately 15 to 95 cubic yards of concrete. The TSPs would be steel structures with a dulled galvanized finish.

Approximately three 10-feet wide by 20-feet in length by 9.5-feet deep precast, concrete, tub- style splice vaults and one approximately 100-foot TSP riser pole would be installed to accommodate the underground portion of the 115 kV subtransmission line. The underground portion of the 115 kV subtransmission line would require a full encasement duct bank for approximately 1,300 feet in length outside the substation fence and 300 feet within the substation fence. Three 115 kV cable terminations would be installed individually on the end of the 3,000- kcmil copper underground cable. The cable terminations would then be connected to the new overhead non-specular 954 SAC conductor at the TSP riser pole location.

In order to accommodate the proposed 115 kV subtransmission facilities, some of the existing 12 kV and 33 kV distribution facilities would need to be modified. This includes the transfer of a portion of existing distribution facilities to newly installed structures and as necessary, the lowering of distribution facilities on existing structures located along SCE’s existing subtransmission facilities. Additionally, this would require the removal of approximately 230 wood poles.

SCE would file Federal Aviation Administration (FAA) notifications for Proposed Project structures, as required. With respect to Proposed Project structures, the FAA will conduct its own analysis and may recommend no changes to the design of the proposed structures; or may request redesigning the proposed structures near the airports to reduce the height of such structures; or marking the structures, including the addition of aviation lighting; or placement of marker balls on wire spans. SCE would evaluate the FAA recommendations for reasonableness and feasibility, and in accordance with Title 14 Part 77, SCE may petition the FAA for a discretionary review of its determination to address any issues with the FAA determination. FAA agency determinations for permanent structures typically are valid for 18 months, and therefore such notifications would be filed upon completion of final engineering and before construction commenced. The entirety of the Proposed Project area would be built within a combination of existing and newly acquired easements and franchise rights (the “Right-of-Way”), and all construction activities would be performed at a distance from airport activity sufficient to minimize safety concerns to construction personnel.

Approximately 74 poles/towers are anticipated to require FAA notifications. SCE would consult with the FAA and implement recommendations, as required. Typical recommendations include, but are not limited to, the following: installation of marker balls on spans (catenaries) between structures, and/or installation of lighting on structures. Generally, marking or lighting is recommended by the FAA for those spans or structures that exceed 200 feet in height above ground level; however marking or lighting may be recommended for spans and structures that are less than 200 feet above ground level, but located within close proximity to an airport or other high-density aviation environment. The specific requirements for the installation of marker balls or lights are specified in FAA Advisory Circular AC 70/7460-1K; when marker balls are installed, SCE complies with FAA installation requirements, as follows:

*Marker Ball Specifications*

* + - * + **Size and Color:** The diameter of the markers used on extensive catenary wires across canyons, lakes, rivers, etc., should be not less than 36 inches (91 cm). Smaller 20-inch (51 cm) spheres are permitted on less extensive power lines or on power lines below 50 feet (15 m) above the ground and within 1,500 feet (458 m) of an airport runway end. Each marker should be a solid color such as aviation orange, white, or yellow.
        + **Spacing:** Markers should be spaced equally along the wire at intervals of approximately 200 feet (61 m) or a fraction thereof. Intervals between markers should be less in critical areas near runway ends (i.e., 30 to 50 feet [10 m to 15 m]). They should be displayed on the highest wire or by another means at the same height as the highest wire. Where there is more than one wire at the highest point, the markers may be installed alternately along each wire if the distance between adjacent markers meets the spacing standard. This method allows the weight and wind loading factors to be distributed.
        + **Pattern:** An alternating color scheme provides the most conspicuity against all backgrounds. Mark overhead wires by alternating solid colored markers of aviation orange, white, and yellow. Normally, an orange sphere is placed at each end of a line and the spacing is adjusted (not to exceed 200 feet [61 m]) to accommodate the rest of the markers.

When lighting is installed, SCE complies with FAA installation requirements, as follows:

*Lighting Specifications*

* **Structures 150 feet or less** – Structures 150 feet or less have two steady burning red lights on the top of the structure. The lights are illuminated only during darkness.
* **Structures over 150 feet** – Taller structures that exceed 150 feet have a flashing red beacon on the top of the structure, and two steady burning red lights at mid-height. They are illuminated only during darkness.

## Telecommunications Poles/Towers

*This section is not applicable to the Proposed Project.*

## Conductor/Cable

* + - 1. **Above-Ground Installation**

*This section is not applicable to the Proposed Project.*

## Transmission

*This section is not applicable to the Proposed Project.*

## Subtransmission

Existing 115 kV subtransmission structures would be double circuited with new non-specular 954-kcmil SAC. New 115 kV subtransmission structures would be single circuit or double circuit with new non-specular 954-kcmil SAC. A FRC would be transferred and/or upgraded, and installed on the new subtransmission structures as required.

The subtransmission conductor is planned to be at least 49 feet above ground as measured at the pole. The vertical distance between the conductors installed on the poles would be a minimum of 8 feet. The horizontal distance between the conductors installed on poles would be a minimum of 11 feet and would maintain a minimum 60 inches between the 115 kV conductor and ground wire.

Preliminary conductor span lengths for wood and LWS pole spans are a minimum of approximately 80 feet to a maximum of 350 feet and approximately a minimum 80 feet to a maximum 600 feet for TSP spans; the actual span lengths are to be determined during final engineering.

All conductors installed as part of the Proposed Project would be ACSR or SAC. The 4/0 ACSR would be 0.563 inches in diameter and the 954 SAC would be 1.124 inches in diameter. The

existing 653 ACSR 115 kV conductors transferring to the new 115 kV structures are 0.953 inches in diameter.

The approximate dimensions of the proposed structure types are shown in Figure 3.3 Typical Subtransmission Structures and summarized in Table 3.1 Typical Subtransmission Structures to be Installed.

## Telecommunications

Existing SCE and third-party telecom cables would be transferred to the new subtransmission poles installed for Segments 1 and 2 of the Proposed Project. These cables would be attached with wood cross-arms and /or metallic suspension side clamps. New telecom cable would not be installed for Segments 1 and 2 of the Proposed Project.

## Distribution

Based upon preliminary engineering, existing distribution facilities would need to be transferred and removed with the installation of the new Valley-Triton 115 kV Subtransmission Line. The distribution facilities along a private road would need to be adjusted in elevation to allow for the double circuiting of the existing Valley-Auld-Triton 115 kV Subtransmission Line. Distribution facilities along Leon Road would need to be transferred from the existing pole locations to the new 115 kV subtransmission line pole locations. This would require the installation of new conductor and/or the transferring of existing conductor. Additionally, all equipment (capacitors, switches, transformers, automatic reclosers, services, secondaries, etc.) would need to be transferred to the new pole locations.

In order to accommodate the proposed 115 kV subtransmission facilities, some of the existing 12 kV and 33 kV distribution facilities would need to be modified. This includes the transfer of a portion of existing distribution facilities to newly installed structures and, as necessary, the lowering of distribution facilities on existing structures located along SCE’s existing subtransmission facilities. Additionally, this would require the removal of approximately 230 wood poles.

## Below-Ground Installation

* + - * 1. **Transmission**

*This section is not applicable to the Proposed Project.*

## Subtransmission

The Proposed Project includes a total of approximately 1,600 feet of new trench for the underground portion of the new 115 kV subtransmission line and associated transition and support structures. Support structures include duct bank and vaults.

Segment 1 would include a new underground conventional system consisting of three new subtransmission vaults, a new duct bank, and new underground 115 kV (single circuit, cross-

linked polyethylene, stranded-dielectric, copper) cables. The dimensions of the underground vaults would be approximately 10 feet wide by 20 feet long with an approximate height of 9.5 feet. The duct bank would be approximately 21 inches in height by 17.5 inches in width (see Figure 3.4 Typical Subtransmission Duct Bank for standard duct bank configuration and Figure

3.5 Typical Subtransmission Vault for standard vault configuration).

As trenching for the underground 115 kV subtransmission line is completed, SCE would begin to install the underground duct bank. Collectively, the duct bank is comprised of cable conduit, spacers, ground wire, and concrete encasement. The duct bank typically consists of six 5-inch diameter encased burial polyvinyl chloride (PVC) conduits fully encased with a minimum of 3 inches of concrete on all sides. Typical 115 kV subtransmission duct bank installations would accommodate six cables. The Proposed Project would utilize three cable conduits and leave three spare cable conduits pursuant to SCE’s current standards for 115 kV underground construction.

The majority of the 115 kV duct banks would be installed in a vertically stacked configuration. In areas where underground utilities are highly congested or areas where it is necessary to fan out the conduits to reach termination structures, a flat configuration duct bank may be required.

In instances where a subtransmission duct bank would cross or run parallel to other substructures that operate at normal soil temperature (e.g., gas lines, telephone lines, water mains, storm drains, sewer lines), a minimal radial clearance of 6 inches for crossing and 12 inches for paralleling these substructures would be required, respectively. Where duct banks cross or run parallel to substructures that operate at temperatures significantly exceeding normal soil temperature (e.g., other underground transmission circuits, primary distribution cables, steam lines, heated oil lines), additional radial clearance may be required. Clearances and depths would meet requirements set forth within Rule 41.4 of CPUC G.O. 128. There is no underground work proposed for Segment 2 of the Proposed Project.

## Telecommunications

*This section is not applicable to the Proposed Project.*

## Distribution

Based upon preliminary engineering, there are approximately 14 locations where overhead to underground transitions (risers) would need to be adjusted within Segment 1. These adjustments would require trenching and the installation of conduits from the point of interception to the new pole locations.

Segment 1 includes a total of approximately 900 feet of new underground distribution lines and associated transition and support structures. An approximately 20 to 24-inch wide by 46-inch deep trench would be required to place the distribution line underground. This depth is required to meet the minimum 30 inches of cover above the duct bank. Excavated materials would be disposed of at an off-site disposal facility in accordance with all applicable laws. Should groundwater be encountered, it would be pumped into a tank and disposed of at an off-site disposal facility in accordance with all applicable laws.

The trench for underground construction would be widened and shored where appropriate to meet California Occupation and Safety Health Administration requirements. Trenching would be staged so that open trench lengths would not exceed that which is required to install the duct banks. Where needed, open trench sections would have steel plates placed over them in order to maintain vehicular and pedestrian traffic. Provisions for emergency vehicle access would be arranged with local jurisdictions in advance of construction activities.

## Substations

*This section is not applicable to the Proposed Project.*

## [Highest voltage] kV Switchrack

*This section is not applicable to the Proposed Project.*

## [High voltage] – [Low voltage] kV Transformers

*This section is not applicable to the Proposed Project.*

## [First Stepdown voltage] kV Switchrack

*This section is not applicable to the Proposed Project.*

## [Low voltage] – [66-12 kV voltage] kV Transformers

*This section is not applicable to the Proposed Project.*

## [Second Stepdown kV voltage] kV Switchrack

*This section is not applicable to the Proposed Project.*

## [Third Stepdown kV voltage] kV Switchrack

*This section is not applicable to the Proposed Project.*

## Capacitor Banks

*This section is not applicable to the Proposed Project.*

## Other Electric Equipment

*This section is not applicable to the Proposed Project.*

## Control Building

*This section is not applicable to the Proposed Project.*

## Substation Electrical Power

*This section is not applicable to the Proposed Project.*

## Mechanical and Electrical Equipment Room

*This section is not applicable to the Proposed Project.*

## Microwave [Tower or Monopole]

*This section is not applicable to the Proposed Project.*

## Counterpoise

*This section is not applicable to the Proposed Project.*

## Ancillary Facilities Description

*This section is not applicable to the Proposed Project.*

## Restroom Facilities

*This section is not applicable to the Proposed Project.*

## Fire Water Retention Basin and/or Collection System

*This section is not applicable to the Proposed Project.*

## Substation Access

*This section is not applicable to the Proposed Project.*

## Substation Parking Area

*This section is not applicable to the Proposed Project.*

## Substation Grading and Drainage Description

*This section is not applicable to the Proposed Project.*

## Substation Lighting

*This section is not applicable to the Proposed Project.*

## Substation Perimeter

*This section is not applicable to the Proposed Project.*

## Distribution Getaways

*This section is not applicable to the Proposed Project.*

## Modifications to Existing Substations

In order to accommodate the Proposed Project connection at SCE’s existing Valley 500/115 kV Substation, the following work would be conducted:

* + - * + Equip a position of the existing 115 kV switchrack with two 115 kV circuit breakers, (the circuit breakers would contain an estimated 60 to 90 pounds of SF6), four 115 kV group- operated disconnecting switches, one 115 kV potential transformer, three 115 kV lightning arresters, and install a conductor bus using two 1,590-kcmil ACSR conductors. In addition, a 115 kV line getaway exiting the substation would be installed underground.
        + Install equipment conduit and grounding for the circuit breakers and disconnect switches, which would include trenching.
        + Install six protection relays mounted in two 19-inch relay racks inside the MEER.

# Right-of-Way Requirements

Upon final engineering and receipt of the Proposed Project approvals, SCE would confirm the necessary land and acquire the same for the Proposed Project. The proposed land rights that may need to be acquired and/or amended are as follows:

* + - **Access** – Access to all project components would be provided directly from existing public roads or existing SCE access roads, except for one proposed pole location along Leon Road where some access road design is proposed and would require a new easement. For more details on this access road, see Section 3.7.1.3.
    - **Subtransmission** – The proposed 115 kV subtransmission line would tie into SCE’s existing Valley 500/115 kV Substation. The route location is currently within existing easements and public right-of-way (ROW) where SCE holds franchise; however, approximately 36 private properties would require new or upgraded land rights and agency permits as required.
    - **Distribution** – Any existing distribution lines along the proposed route would be co- located on the same structures and should not require additional land rights.
    - **Telecommunications** – Any existing telecom lines along the proposed route would be co-located on the same structures and should not require additional land rights.
    - **Construction Support** – Based on final engineering and construction requirements, Temporary Entry Permits and/or leases may be acquired from private land owners to provide sufficient equipment and material storage, staging and work areas for any approved project component.

To support the Proposed Project, SCE will utilize approximately 0.13 miles of SCE fee-owned property, 9.2 miles of existing easements of variable widths, up to 55 feet wide; 1.3 miles of franchise rights; 5.2 miles of proposed new or upgraded easements sufficient to contain the proposed facilities and provide safety and access, which is estimated to be 25 to 30 feet wide. Easement widths are based on facility types, final design and type of right to be acquired; therefore, we have provided approximate distances. Upgrading easements may include adding land rights, adding width to existing easements, improving or clarifying access or maintenance rights, etc.

# Construction

The following subsections describe the construction activities associated with the Proposed Project.

## For All Projects

* + - 1. **Staging Areas**

Construction of the Proposed Project would require the establishment of temporary staging yards. Staging yards would be used as a reporting location for workers, vehicle and equipment

parking, and material storage. The yard may also have construction trailers for supervisory and clerical personnel. Staging yards may be lit for safety and security. Normal maintenance and refueling of construction equipment would also be conducted at these yards. All refueling and storage of fuels would be in accordance with the Storm Water Pollution Prevention Plan (SWPPP).

SCE anticipates using one or more of the possible locations listed in Table 3.2 Potential Staging Yard Locations as the staging yard(s) for the Proposed Project. Typically, each yard would be approximately 2 to 5 acres in size, depending on land availability and intended use. Preparation of the staging yard would include temporary perimeter fencing and, depending on existing ground conditions at the site, grubbing and/or grading may be required to provide a plane and dense surface for the application of gravel or crushed rock. Slope stabilization issues have not been identified at this time. However, any potential issues would be addressed in the SWPPP at the time of final engineering. Any land that may be disturbed at the staging yard would be returned to pre-construction conditions or left in its modified condition, if requested by the landowner following the completion of construction for the Proposed Project.

Temporary power would be determined based on the type of equipment/facilities being used at the staging yards. If existing distribution facilities are available, a temporary service and meter may be used for electrical power at one or more of the yards. If it is determined that temporary power is not needed or available at the staging yards full time, a portable generator may be used intermittently for electrical power at one or more of the yards.

Materials commonly stored at the substation construction staging area would include, but not be limited to, portable sanitation facilities, electrical equipment such as circuit breakers, disconnect switches, lightning arresters, transformers, vacuum switches, steel beams, rebar, foundation cages, conduit, insulators, conductor and cable reels, pull boxes, and line hardware.

Materials commonly stored at the subtransmission and/or distribution construction staging yards would include, but not be limited to, construction trailers, construction equipment, portable sanitation facilities, steel bundles, steel/wood poles, conductor reels, overhead ground wire (OHGW) or overhead optical ground wire (OPGW) reels, hardware, insulators, cross arms, signage, consumables (such as fuel and filler compound), waste materials for salvaging, recycling, or disposal, and Best Management Practice (BMP) materials (straw wattles, gravel, and silt fences).

Approximately 25 gallons of fuel would be stored at the site for use in the generator or power tools. The SWPPP(s) prepared for the Proposed Project would identify locations for storage of hazardous materials during construction as well as BMPs, notifications, and clean-up requirements for incidental spills or other potential releases of hazardous materials.

A majority of materials associated with the construction efforts would be delivered by truck to designated staging yards, while some materials may be delivered directly to the temporary transmission and subtransmission construction areas described in Section 3.7.1.2, Work Areas.

## Table 3.2 Potential Staging Yard Locations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Yard Name** | **Location** | **Condition** | **Approx. Area (Acres)** | **Project Component** |
| Subtransmission Material Yard 1 | Located in the City of Menifee, southwest corner of Private Road and Menifee Road | Previously Disturbed | 2.0 | Subtransmission |
| Subtransmission Material Yard 2 | Located in Riverside County, approximately 700 feet west of Van Gaale Lane south side of Benton Road | Previously Disturbed | 2.0 | Subtransmission |
| Subtransmission Material Yard 3 | Located in the City of Perris, approximately 150 feet north of Case Road, 250 feet east of G Street on Walker Avenue | Previously Disturbed | 2.4 | Subtransmission |
| Subtransmission Material Yard 4 | Located in the City of Menifee, approximately 350 feet south of Ethanac Road on west side of Antelope Road | Previously Disturbed | 4.6 | Subtransmission |
| Distribution Material Yard 5  (Menifee Service Center) | Located in the City of Menifee, on the east side of Menifee Road just south of SR-74. | Previously Disturbed | N/A1 | Distribution |
| Substation Material Yard 6  (Valley Substation) | Located in the City of Menifee, on the west side of Menifee Road just south of SR-74. | Previously Disturbed | N/A1 | Substation |
| **Note:**  1 Material yard is located at an existing SCE facility, which is currently being used to store materials not associated with the Proposed Project. This material yard was included for the purposes of the environmental analysis. | | | | |

## Work Areas

Construction work areas serve as temporary working areas for crews and where project related equipment and/or materials are placed at or near each structure location, within SCE ROW or franchise. Table 3.3 Approximate Laydown/Work Area Dimensions, identifies the approximate land disturbance for these construction areas dimensions for the Proposed Project.

The new structure pad locations and laydown/work areas (Table 3.3 Approximate Laydown/Work Area Dimensions) would first be graded and/or cleared of vegetation as required to provide a reasonably level and vegetation-free surface for structure installation. Sites would be graded such that water would run toward the direction of the natural drainage. In addition, drainage would be designed to prevent ponding and erosive water flows that could cause damage to the structure footings. The graded area would be compacted to at least 90-percent relative density, and would be capable of supporting heavy vehicular traffic.

Erection of the structures may also require establishment of a temporary crane pad. The crane pad would occupy an area of approximately 50 feet by 50 feet and be located adjacent to each applicable structure within the laydown/work area used for structure assembly. The pad may be cleared of vegetation and/or graded as necessary to provide a level surface for crane operation. The decision to use a separate crane pad would be determined during final engineering for the Proposed Project and the selection of the appropriate construction methods to be used by SCE or its Contractor.

Benching may be required to provide access for footing construction, assembly, erection, and wire stringing activities during line construction. Benching is a technique in which an earth moving vehicle excavates a terraced access to structure locations in extremely steep and rugged terrain. Benching would also be used on an as-needed basis in areas to help ensure the safety of personnel during construction activities.

## Table 3.3 Approximate Laydown/Work Area Dimensions

|  |  |
| --- | --- |
| **Laydown/Work Area Feature** | **Preferred Size (L x W)** |
| Guard Structures | 150’ x 75’ |
| TSPs | 200’ x 150’ |
| LWS/Wood Poles | 150’ x 75’ |
| LWS/Wood Guy Poles | 150’ x 75’ |
| LWS Poles (Removal) | 150’ x 150’ |
| Wood Poles/Down Guys (Removal) | 150’ x 75’ |
| Reconfigure Pole Top | 50’ x 50’ |
| Splicing Set Up Area | 150’ x 100’ |
| Pull and Tension Area | 300’ x 100’ |

|  |  |
| --- | --- |
| **Laydown/Work Area Feature** | **Preferred Size (L x W)** |
| Underground Vaults | 100’ x 100’ |
| **Note:** The dimensions listed above are preferred for construction efficiency; actual dimensions may vary depending on project constraints | |

* + - 1. **Access Roads and/or Spur Roads**

Subtransmission line roads are classified into two groups; access roads and spur roads. Access roads are through roads that run between structure sites along a ROW and serve as the main transportation route along line ROWs. Spur roads are roads that lead from access roads and terminate at one or more structure sites.

For construction of the Proposed Project, SCE would utilize a combination of through roads and spur roads accessed from a network of existing paved and unpaved public and private roads. For Segment 1 of the Proposed Project, SCE would also use and maintain one existing permanent unpaved access road 400 feet in length on the easterly side of Leon Road starting approximately 300 feet south of Craig Road. Access that would be used for construction purposes would be utilized for operation and maintenance (O&M) as well. For Segment 2 of the Proposed Project, there are no new access roads anticipated. SCE will utilize existing access roads for the reconductor portion of the Proposed Project.

Some rehabilitation may be required for the existing unpaved access roads. Typical construction activities associated with that rehabilitation include vegetation clearing, blade-grading and re- compacting to remove potholes, ruts, and other surface irregularities in order to provide a smooth dense riding surface capable of supporting heavy construction and maintenance equipment. Existing unpaved roads may also require additional upgrades such as protection for underground utilities and widening existing road widths that are too narrow for safe vehicle operation.

Generally, unpaved access roads would have a minimum 14 feet drivable width with 2 feet of shoulder on each side as determined by the existing land terrain to accommodate required drainage features. Typically the drivable road width would be widened, generally ranging from an additional 0 to 8 feet along curved sections of the access road creating up to 22 feet drivable surface for the access road. Access road gradients would be leveled so that sustained grades generally do not exceed 12 percent. Curves would typically have a minimum radius of curvature of 50 feet measured from the center line of the drivable road width. Specific site locations may require a wider drivable area to accommodate multi-point turns where 50 feet minimum radii cannot be achieved.

## Access Locations

Access for construction and O&M activities outside of SCE ROW may be required in certain areas until such time that the proposed and/or dedicated public streets are improved to ultimate build out as identified in the Riverside County General Plan Circulation Element (August 2008). SCE will work with the corresponding property owner(s) to identify the best route across the

unimproved proposed and/or dedicated public streets. These access locations would traverse the proposed and/or dedicated public street ROW along Menifee Road, Briggs Road, Matthews Road, Case Road, Grand Avenue, Leon Road, Old Leon Road (for reference purposes only) Simpson Road, Scott Road, Holland Road, Penny Cress Lane, Thompson Road, Max Gillis Boulevard, Newport Road/Domenigoni Parkway, SR-79, Benton Road, Antelope Road, Ethanac Road, and SR-74 to gain access to each pole site and/or staging yards. A private road between Menifee and Briggs Roads that is currently being used as a SCE access road/farm road will also be evaluated when identifying the best route.

Generally, SCE would utilize overland travel from the edge of the existing paved or dirt road approximately 50 feet to reach each pole site, accounting for approximately 7.7 acres of land disturbance. Where necessary, ground-disturbance dimensions and activities associated with these access locations would be similar to the dimensions and activities described for the rehabilitation of existing unpaved roads, such as mowing, grubbing, and grade blading. The number of access locations required would be dependent upon final engineering, existing topographical considerations, and availability of suitable terrain that would provide safe access. These access locations will not be maintained by SCE after the project construction is completed but instead utilized on an as needed basis only until the public street ROW is completely built out.

## Table 3.4 Access Road Land Disturbance

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Project Feature** | **Site Quantity** | **Disturbance Acreage Calculation**  **(L x W)** | **Acres Disturbed During Construction** | **Acres to be Restored** | **Acres Permanently Disturbed** |
| Access Road | 1 | 400’ x 18’ | 0.2 | 0 | 0.2 |
| **Note**: In the “Disturbance Acreage Calculation column, the width may increase to approximately 26 feet along curved sections of the access roads. | | | | | |

* + - 1. **Helicopter Access**

The Proposed Project will not utilize helicopters to support construction activities or O&M.

## Vegetation Clearance

The new structure pad locations and laydown/work areas (Table 3.3 Approximate Laydown/Work Area Dimensions) would first be graded and/or cleared of vegetation as necessary to provide a reasonably level and vegetation-free surface for structure installation. Sites would be graded such that water would run toward the direction of the natural drainage. In addition, drainage would be designed to prevent ponding and erosive water flows that could cause damage to the structure footings. The graded area would be compacted to at least 90 percent relative density, and would be capable of supporting heavy vehicular traffic.

The subtransmission and distribution lines would be maintained in a manner consistent with CPUC G.O. 95 and G.O. 128 as applicable.

Vegetation management for operations and maintenance is described in Section 3.8, Operation and Maintenance.

## Erosion and Sediment Control and Pollution Prevention during Construction

* + - * 1. **Storm Water Pollution Prevention Plan**

Construction of the Proposed Project would disturb a surface area greater than one acre. Therefore, SCE would be required to obtain coverage under the Statewide Construction General Permit (Order No. 2009-0009-DWQ) from the State Water Resources Control Board (SWRCB). Commonly used BMPs are storm water runoff quality control measures (boundary protection), dewatering procedures, and concrete waste management. The SWPPP would be based on final engineering design and would include all project components.

## Dust Control

During construction, migration of fugitive dust from the construction sites would be limited by control measures set forth by the South Coast Air Quality Management District’s Rule 4034, which reduces the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. This measure may include the use of water trucks and other dust control measures which may include dust suppressants that work by either agglomerating the fine particles, adhering/binding the surface particles together, or increasing the density of the road surface material. Additionally, see Section 3.9, Applicant Proposed Measures, for additional proposed measures.

## Hazardous Materials

Construction of the Proposed Project would require the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. All hazardous materials would be stored, handled, and used in accordance with applicable regulations. Material Safety Data Sheets would be made available at the construction site for all crew workers.

## Reusable, Recyclable, and Waste Material Management

Construction of the Proposed Project would result in generation of various waste materials, including wood, metal, soil, vegetation, and sanitation waste (portable toilets). Sanitation waste (i.e., human-generated waste) would be disposed of in accordance with applicable sanitation waste management practices. Material from existing infrastructure that would be removed as part

4 Rule 403 in its entirety can be found on SCAQMD's website at [http://www.aqmd.gov/rules/reg/reg04/r403.pdf.](http://www.aqmd.gov/rules/reg/reg04/r403.pdf)

of the Proposed Project such as conductor, steel, concrete, and debris, would be temporarily stored in one or more staging yards as the material awaits salvage, recycling, and/or disposal.

The existing wood poles removed for the Proposed Project would be returned to a staging yard, and either reused by SCE, returned to the manufacturer, disposed of in a Class I hazardous waste landfill, and/or disposed of in the lined portion of a RWQCB-certified municipal landfill.

Material excavated for the Proposed Project would either be used as fill, backfill for new wood poles, wood guy stub poles, LWS poles, TSP footings, or anchors installed for the project, made available for use by the landowner, and/or disposed of off-site at an appropriately licensed waste facility. If contaminated material is encountered during excavation, work would stop at that location and SCE's Spill Response Coordinator would be called to the site to make an assessment and notify the proper authorities.

## 3.7.1.7 Clean up and Post-Construction Restoration

SCE would clean up and restore all areas that would be temporarily disturbed by construction of the Proposed Project (which may include the material staging yard, construction setup areas, stringing sites, and splicing sites) to as close to pre-construction conditions as feasible, or to the conditions agreed upon between the landowner and SCE following the completion of construction of the Proposed Project. SCE will provide a post-construction restoration plan when construction is nearing completion. Until construction is nearing completion, the levels of clean up and restoration efforts that may be required are unknown.

If restoration or revegetation occurs within sensitive habitats, a habitat restoration and/or revegetation plan(s) would be developed by SCE with the appropriate resource agencies and implemented after construction is complete. Additional information pertaining to the habitat restoration and/or revegetation plan(s) can be found in Section 4.4, Biological Resources.

## Subtransmission Line Construction (Above-Ground)

The following sections describe the above-ground construction activities associated with installing the subtransmission line segments for the Proposed Project.

## Pull and Tension Sites5

The pulling, tensioning, and splicing set-up locations associated with the Proposed Project would be temporary and the land would be restored to its previous condition following completion of pulling and splicing activities. The set-up locations require level areas to allow for maneuvering of the equipment and, when possible, these locations would be located on existing roads and level areas to minimize the need for grading and cleanup. Approximately 40 set-up locations are

5 For the purposes of this PEA, the term “pull and tension site” is synonymous with the term “stringing sites.”

currently proposed. The final number and location of these sites would be determined upon final engineering. The approximate area needed for stringing set-ups associated with wire installation is variable and depends upon terrain. See Table 3.5 Subtransmission Approximate Land Disturbance for approximate size of pulling, tensioning and splicing equipment set-up areas and laydown dimensions.

Wire pulls are the length of any given continuous wire installation process between two selected points along the line. Wire pulls are selected based on a variety of factors, including availability of dead-end structures, conductor size, geometry of the line as affected by points of inflection, terrain, and suitability of stringing and splicing equipment set-up locations. On relatively straight alignments, typical wire pulls occur approximately every 6,000 feet on flat terrain. When the line route alignment contains multiple deflections or is situated in rugged terrain, the length of the wire pull is typically diminished. Generally, pulling locations and equipment set-ups would be in direct line with the direction of the overhead conductors and established at a distance equal to approximately three times the height of the adjacent structure.

Each stringing operation consists of a puller set-up positioned at one end, and a tensioner set-up with wire reel stand truck positioned at the other end of the wire pull. Pulling and wire tensioning locations may also be utilized for splicing and field snubbing of the conductors. Temporary splices, if required, may be necessary since permanent splices that join the conductor together cannot travel through the rollers. Splicing set-up locations are used to remove temporary pulling splices and install permanent splices once the conductor is strung through the rollers located on each structure. Field snubs (i.e., anchoring and dead-end hardware) would be temporarily installed to sag conductor wire to the correct tension at locations where stringing equipment cannot be positioned in back of a dead-end structure.

## Telecommunication Pull and Tension Sites

*This section is not applicable to the Proposed Project.*

## Pole Installation and Removal

Pole installation and removal would require the use of a variety of equipment as presented in Tables 3.10-A, 3.10-B, and 3.10-C; all construction vehicles and equipment would be moved to pole installation or removal sites overland using the existing subtransmission access road network and spur roads.

## Pole and Foundation Removal

The Proposed Project would involve removing structures, conductor, and associated hardware. The following work is proposed in the sequence below:

**Road w ork –** Existing access roads would be used to reach structures, but some rehabilitation and grading may be necessary before removal activities would begin to establish temporary crane pads for structure removal, etc

**Wire-pulling locations** – Wire pulling sites would be located approximately every 6,000 feet along the existing utility corridor, and would include locations at dead-end structures and turning points

**Conductor removal –** Upon placement of the wire pulling equipment, the subtransmission conductor would be pulled out with a pulling rope and/or cable attached to the trailing end of the conductor; guard structures or the equivalent might be used during the removal process. The old conductor would be transported to a construction yard where it would be prepared for recycling

**Structure removal** – Most structure removal activities would use the previously disturbed areas established for structure installation. If previously disturbed areas adjacent to the structure are not available, an area would be cleared of vegetation and graded if the ground is not level. Structures would be dismantled down to the foundations and the materials would be transported to a construction yard where it would be prepared for recycling

**Footing/Foundation removal** – Footings would be removed to a point 1 to 2 feet below grade and the holes would be filled with excess soil and smoothed to match the surrounding grade. Footing materials would be transported to a construction yard where it would be prepared for disposal

Any existing transmission lines, subtransmission lines, distribution lines, and telecommunication lines (where applicable) would be transferred to the new structures prior to removal of existing structures. Any remaining facilities that are not reused by SCE would be removed and delivered to a facility for disposal as described in Section 3.7.1.6.4, Reusable, Recyclable, and Waste Material Management.

The existing wood poles would be completely removed once the subtransmission, distribution, and telecommunication lines are transferred to the new poles. The removal would consist of the above- and below-ground portions of the pole. The holes left from removing the poles would be backfilled with spoils that may be available as a result of the excavation for new poles and using imported fill as needed.

The removal of LWS poles would consist of the above- and below-ground portions of the pole. The holes left from removing the poles would be backfilled with spoils that may be available as a result of the excavation from other construction areas and using imported fill as needed.

For each type of structure (TSP, LWS, or wood poles), a crane truck or rough-terrain crane would be used to support the structure during removal; an equipment pad of approximately 50 feet by 50 feet might be required to allow a removal crane to be set up at a distance of up to 70 feet from the structure center line. The crane rail would be located transversely from the structure locations. Structures would be dismantled down to the foundations and the materials would be transported to a construction yard where it would be stored for pick up and disposal at an approved recycling facility.

Removal of other structures, such as, cell towers and culverts have not been identified within the Proposed Project area at this time.

## Top Removal

For the Proposed Project, topping existing wood poles would be required when third-party telecom/cable would remain on the topped poles. Access to the pole tops would be via bucket truck(s), or linemen would climb the poles where vehicle access was limited. Once the subtransmission and/or distribution conductors have been removed and transferred to the new poles, the support crossarms on the existing poles (if equipped) would be removed and the top portion of the poles above the existing telecom/cable attachment point would be cut and removed.

## Pole/Tower Installation 3.7.2.2.3.1 Foundation Installation

Each TSP would require a drilled, poured-in-place, concrete footing that would form the structure foundation. The hole would be drilled using truck or track-mounted excavators. Excavated material would be used as described in Section 3.7.1.6.4, Reusable, Recyclable, and Waste Material Management. Following excavation of the foundation footings, steel-reinforced cages would be set, positioning would be survey verified, and concrete would then be poured. Foundations in soft or loose soil or those that extend below the groundwater level may be stabilized with drilling mud slurry. In this instance, mud slurry would be placed in the hole during the drilling process to prevent the sidewalls from sloughing. Concrete would then be pumped to the bottom of the hole, displacing the mud slurry. Depending on site conditions, the mud slurry brought to the surface would typically be collected in a pit adjacent to the foundation or vacuumed directly into a truck to be reused or discarded at an appropriate off-site disposal facility. TSP foundations typically require an excavated hole approximately 5 feet to 9 feet in diameter at approximately 20 feet to 40 feet deep. TSPs would require approximately 10 to 95 cubic yards of concrete delivered to each structure location.

The excavated material would be distributed at each structure site, used to backfill excavations from the removal of nearby structures (if any), and/or used in the rehabilitation of existing access roads. Alternatively, the excavated soil may be disposed of at an off-site disposal facility in accordance with applicable laws as described in Section 3.7.1.6.4, Reusable, Recyclable, and Waste Material Management.

Slight to severe ground caving is anticipated along the preferred route during the drilling of the TSP foundations due to the presence of loose soils or groundwater levels. The use of water, fluid stabilizers, drilling mud and/or casings would be made available to control ground caving and to stabilize the sidewalls from sloughing. If fluid stabilizers are utilized, mud slurry would be added in conjunction with the drilling. The concrete for the foundation is then pumped to the bottom of the hole, displacing the mud slurry. Mud slurry brought to the surface is typically collected in a pit adjacent to the foundation and/or vacuumed directly into a truck to be reused or discarded at an off-site disposal facility in accordance with all applicable laws.

Concrete samples would be drawn at the time of pour and tested to ensure engineered strengths were achieved. A normally specified SCE concrete mix typically takes approximately 20 working days to cure to an engineered strength. This strength is verified by controlled testing of

sampled concrete. Once this strength has been achieved, crews would be permitted to commence erection of the structure.

During construction, existing concrete supply facilities would be used where feasible.

Prior to drilling for foundations, SCE, or its Contractor, would contact Underground Service Alert to identify any existing underground utilities in the construction zone.

## Lattice Steel Tower Installation

*This section is not applicable to the Proposed Project.*

## Tubular Steel Pole Installation

TSPs typically consist of multiple sections. The pole sections would be placed in temporary laydown areas at each pole location. See Table 3.3 Approximate Laydown/Work Area Dimensions for approximate laydown dimensions. Depending on conditions at the time of construction, the top sections may come pre-configured, may be configured on the ground, or configured after pole installation with the necessary cross arms, insulators, and wire stringing hardware. A crane would then be used to set each steel pole base section on top of the previously prepared foundations. If existing terrain around the TSP location is not suitable to support crane activities, a temporary crane pad would be constructed within the laydown area. When the base section is secured, the subsequent section of the TSP would be slipped together into place onto the base section. The pole sections may also be spot welded together for additional stability. Depending on the terrain and available equipment, the pole sections could also be pre-assembled into a complete structure prior to setting the poles.

## Wood Pole Installation

Each wood pole would require a hole to be excavated using either an auger, backhoe, or with hand tools. Excavated material would be used as described in Section 3.7.1.6.4, Reusable, Recyclable, and Waste Material Management. The wood poles would be placed in temporary laydown areas at each pole location. While on the ground, the wood poles may be configured (if not reconfigured) with the necessary cross arms, insulators, and wire stringing hardware before being set in place. The wood poles would then be installed in the holes, typically by a line truck with an attached boom. Wood guy stub poles would be installed similarly to wood poles.

## Light Weight Steel Pole Installation

Each LWS pole would require a hole to be excavated using either an auger or excavated with a backhoe. Excavated material would be used as described in Section 3.7.1.6.4, Reusable, Recyclable, and Waste Material Management. LWS poles consist of separate base and top sections and may be placed in temporary laydown areas at each pole location. Depending on conditions at the time of construction, the top sections may come preconfigured, may be configured on the ground, or configured after pole installation with the necessary cross arms, insulators, and wire-stringing hardware. The LWS poles would then be installed in the holes, typically by a line truck with an attached boom. When the base section is secured, the top section would be installed on top of it. Depending on the terrain and available equipment, the pole

sections could also be assembled into a complete structure on the ground prior to setting the poles in place within the holes. LWS guy stub poles would be installed similarly to LWS poles.

## Wood Pole Equivalent Pole Installation

*This section is not applicable to the Proposed Project.*

## Microwave Installation

*This section is not applicable to the Proposed Project.*

## Subtransmission Land Disturbance Table

Land disturbance for the new 115 kV subtransmission line portion of the Proposed Project would include surface modifications for the installation of access roads, 115 kV subtransmission line installation and conductor transfer, and relocation of existing distribution facilities. The estimated land disturbance for these project features are summarized in Table 3.5 Subtransmission Approximate Land Disturbance.

## Table 3.5 Subtransmission Approximate Land Disturbance

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Site Quantity** | **Disturbance Acreage Calculation (L x W)** | **Acres Disturbed During Construction** | **Acres to be Restored** | **Acres Permanently Disturbed** |
| **Project Feature** |
|  |
| **Subtransmission Component** | | | | | |
| Guard Structures1 | 31 | 150’ x 75’ | 8.0 | 8.0 | 0.0 |
| Remove Existing Subtransmission Wood Poles/Wood Guy Stub Poles 1 | 35 | 150’ x 75’ | 9.0 | 9.0 | 0.0 |
| Remove LWS Poles1 | 5 | 150’ x 150’ | 2.6 | 2.6 | 0.0 |
| Construct New TSPs1 | 30 | 200’ x 150’ | 20.7 | 18.9 | 1.7 |
| Construct LWS Poles1 | 12 | 150’ x 75’ | 3.1 | 3.0 | 0.1 |
| Construct New Wood Poles/Wood Guy Stub Poles1 | 266 | 150’ x 75’ | 69.0 | 66.3 | 2.7 |
| Anchors | 165 | 50’ x 50’ | 9.5 | 7.8 | 1.7 |
| Reconfigure Pole Tops2 | 51 | 50’ x 50’ | 2.9 | 2.9 | 0.0 |
| Stringing Conductor/Cable (Pull  & Tension) Setup Area3 | 43 | 300’ x 100’ | 30.0 | 30.0 | 0.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Site Quantity** | **Disturbance Acreage Calculation (L x W)** | **Acres Disturbed During Construction** | **Acres to be Restored** | **Acres Permanently Disturbed** |
| **Project Feature** |
|  |
| Stringing Conductor/Cable (Splicing) Setup Area3 | 12 | 150’ x 100’ | 4.1 | 4.1 | 0.0 |
| Install Underground Trench, Conduit, and Cable4 | 1,600 | Linear feet x 30’ wide | 1.2 | 1.2 | 0.0 |
| Install Underground Vault5 | 3 | 100’ x 100’ | 0.7 | 0.7 | 0.0 |
| Access Locations6 | 303 | Varies | 7.7 | 0.0 | 7.7 |
| Permanent Access Roads7 | 1 | 400’ x 18’ | 0.2 | 0.0 | 0.2 |
| Material Staging Yards8 | 4 | Acres | 11.0 | 11.0 | 0.0 |
| **Total Estimated9** |  |  | **179.7** | **165.5** | **14.2** |
| **Distribution Relocation Component** | | | | | |
| Remove Existing Distribution Wood Poles/Wood Guy Stub Poles10 | 230 | 50’ x 50’ | 13.2 | 13.2 | 0.0 |
| Install Underground Trench, Conduit, and Cable11 | 900 | Linear feet x 30’ wide | 0.6 | 0.6 | 0.0 |
| **Total Estimated 9** |  |  | **13.8** | **13.8** | **0.0** |
| **Notes:**  1 Includes structure assembly and erection, structure removal, conductor and/or OHGW installation, conductor transfer, conductor removal, and conductor splicing; non-permanent area to be returned/restored after construction. The permanent area of disturbance includes that portion of ROW within 25 feet of a TSP or 10 feet of an LWS pole, wood pole, wood down guy, or anchor and will remain cleared of vegetation; permanently disturbed area is approximately 0.06acres per TSP, 0.01acre per LWS wood pole, wood down guy, or anchor.  2 Reconfigure pole tops from single circuit to double circuit.  3 Based on 6,000 feet conductor/cable reel lengths, number of circuits, and route design.  4 Includes installing trench, conduit, cable, and full encasement duct bank (300 feet within the substation and 1,300 feet outside the fence of Valley Substation).  5 Includes structure assembly and installing the vault. Area to be restored after construction. Portion of ROW within 10 feet of the vault to remain cleared of vegetation. Permanently disturbed area for vault is 0.006 acre. Permanent disturbance for all three vaults totals 0.018 acre.  6 Based on an average 50 foot length by road width (which varies from 14 to 32 feet, curve-widening, intersections, and miscellaneous transitional areas) for approximately 303 pole sites. Although access is only needed temporarily across this area until such time that the proposed and/or dedicated public streets are improved to ultimate build out as identified in the General Plan Circulation Element, the area is being classified as permanent disturbance for environmental review and evaluation purposes.  7 Based on 400 feet length of road multiplied by road width of 14 feet plus a 2-foot shoulder on each side of road; does not include existing access roads that do not require civil design.  8 Material staging yards could be used as a reporting location for workers, vehicle and equipment parking, and/or material | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Site Quantity** | **Disturbance Acreage Calculation (L x W)** | **Acres Disturbed During Construction** | **Acres to be Restored** | **Acres Permanently Disturbed** |
| **Project Feature** |
|  |
| storage.  9 The disturbed acreage calculations are estimates based upon SCE’s preferred area of use for construction work for the described project feature; these estimates are subject to revision based upon final engineering.  10 Includes the removal of existing conductor and teardown of existing structures.  11 Includes installing trench, conduit, and cable for distribution facilities. | | | | | |

* + - 1. **Conductor/Cable Installation**
         1. **Above Ground**

Wire stringing activities would be in accordance with SCE common practices and similar to process methods detailed in the IEEE Standard 524-2003, *Guide to the Installation of Overhead Transmission Line Conductors*. To ensure the safety of workers and the public, safety devices such as traveling grounds, guard structures, radio-equipped public safety roving vehicles and linemen would be in place prior to the initiation of wire stringing activities. Advanced planning is required to determine circuit outages, pulling times, and safety protocols to ensure that the safe installation of wire is accomplished.

Wire stringing includes all activities associated with the installation of the primary conductors onto transmission line structures. These activities include the installation of conductor, ground wire (OHGW/OPGW), insulators, stringing sheaves (rollers or travelers), vibration dampeners, weights, suspension and dead-end hardware assemblies for the entire length of the route.

The following five steps describe typical wire-stringing activities:

**Step 1 – Planning:** Develop a wire-stringing plan to determine the sequence of wire pulls and the set-up locations for the wire pull/tensioning/splicing equipment

**Step 2 – Sock Line Threading:** A bucket truck is typically used to install a lightweight sock line from structure to structure. The sock line would be threaded through the wire rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a conductor pull

**Step 3 – P ulling:** The sock line would be used to pull in the conductor pulling rope and/or cable. The pulling rope or cable would be attached to the conductor using a special swivel joint to prevent damage to the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel

**Step 4 – S plicing, Sagging, and Dead-Ending:** Once the conductor is pulled in, if necessary, all mid-span splicing would be performed. Once the splicing has been completed, the conductor would be sagged to proper tension and dead-ended to structures

**Step 5 – Clipping-In:** After the conductor is dead-ended, the conductors would be secured to all tangent structures; a process called clipping in. Once this is complete,

spacers would be attached between the bundled conductors of each phase to keep uniform separation between each conductor

Also see Figure 3.7 Proposed Pull & Tension Sites, Splicing Sites & Guard Structures.

Transfers of existing telecommunications facilities would consist of installing new cross arms and/or hardware on the new poles, removing the cable from the existing pole and attaching to the new pole, then removing the cross arms and/or hardware from the existing pole.

## Below Ground

Following vault and duct bank installation (described in Sections 3.7.3.1.2 and 3.7.3.1.3), SCE would pull the electrical cables through the duct banks, splice the cable segments at each vault, and terminate the cables at the transition structures where the subtransmission line would transition from underground to overhead. To pull the cables through the duct banks, a cable reel would be placed at one end of the conduit segment, and a pulling rig would be placed at the opposite end. The cable from the cable reel would be attached to a rope in the duct bank and the rope linked to the pulling rig, which would pull the rope and the attached cable through the duct banks. A lubricant would be applied as the cable enters the ducts to decrease friction and facilitate travel through the PVC conduits. The electrical cables for the 115 kV subtransmission line would typically be pulled through the individual conduits in the duct bank at a rate of two to three segments between vaults per day.

After cable pulling is completed, the electrical cables would be spliced together. A splice crew would conduct splicing operations at each vault location and continue until all splicing is completed.

## Guard Structures

SCE estimates that approximately 31 guard structures would need to be constructed at 17 locations along the proposed route. Guard structures are temporary facilities that would typically be installed at transportation, flood control, and utility crossings for wire-stringing/removal activities. Typical guard structures are standard wood poles that are temporarily installed prior to stringing operations to stop the movement of a conductor should it momentarily drop below a conventional stringing height. Depending on the overall spacing of the conductors being installed, approximately two to four guard poles would be required on either side of a crossing. In other locations, i.e., low-traffic roads or shared driveways, SCE would use modified boom trucks to protect the crossing and/or flagmen with would be used to for control traffic control. At highway crossings, temporary netting could be installed if required. The guard structures would be removed after the conductor is secured into place. In some cases, specifically equipped boom trucks could be substituted for guard structures because they would already be located at the site for general construction activities. A biological monitor would assist with the placement of the guard structures to ensure impacts to special status resources are avoided to the extent feasible. Applicant Proposed Measures (APMs), described in Table 3.13, would limit impacts to special status resources to less than significant levels.

Decisions regarding whether to use guard structures or boom trucks would be determined during construction. For construction of the Proposed Project, SCE would work closely with the applicable jurisdiction to secure the necessary permits to string conductor over the applicable infrastructure.

Table 3.6 Proposed Guard Structure Locations lists the locations and type of guard methods that is expected to be employed at each of the locations along with the type of crossing to be protected. These locations and methods are approximate and subject to change based on final engineering.

## Table 3.6 Proposed Guard Structure Locations

|  |  |  |  |
| --- | --- | --- | --- |
| **Guard Structure Number** | **Location1** | **Guard Method2** | **Crossing Type** |
| 1 | West side of Briggs Road, South of Private Road/McLaughlin Road | GS & TC | Road |
| 2 | East side of Briggs Road, South of Private Road/McLaughlin Road | GS & TC | Road |
| 3 | West side of Briggs Road and north side of Case Road | GS | Road |
| 4 | East side of Briggs Road and north side of Case Road | GS | Road |
| 5 | North side of Grand Avenue, East of Leon Road | GS | Road |
| 6 | South side of Grand Avenue, East of Leon Road | GS | Road |
| 7 | Leon Road at train track at~700 feet south of Grand Avenue | GS/BT3 | Train Track |
| 8 | East side of Leon Road, North of Simpson Road | GS | Road |
| 9 | West side of Leon Road, South of Simpson Road | GS | Road |
| 10 | West side of Leon Road, North of Domenigoni Parkway | GS/TC | Road & Street Light |
| 11 | West side of Leon Road, South of Domenigoni Parkway | GS/TC | Road & Traffic Signal |
| 12 | North side of Holland Road at Leon | GS | Road |

|  |  |  |  |
| --- | --- | --- | --- |
| **Guard Structure Number** | **Location1** | **Guard Method2** | **Crossing Type** |
|  | Road |  |  |
| 13 | South side of Holland Road at Leon Road | GS | Road |
| 14 | East side of Leon Road at north side of Wickerd Road | GS | Road |
| 15 | East side of Leon Road at south side of Wickerd Road | GS | Road |
| 16 | East side of Leon Road, North of Scott Road | GS | Road & Distribution OH |
| 17 | West side of Leon Road, South of Scott Road | GS | Road & Distribution OH |
| 18 | West side of Leon Road, ~700 feet North of Jean-Nicholas Road | GS/TC | Road |
| 19 | East side of Leon Road, ~575 feet North of Jean-Nicholas Road | GS/TC | Road |
| 20 | East side of Leon Road at north side of Jean-Nicholas Road | GS/TC | Road |
| 21 | East side of Leon Road at south side of Jean-Nicholas Road | GS/TC | Road |
| 22 | Old Leon Road at North Corner of Winchester Road & Max Gillis Boulevard | GS/TC | Road |
| 23 | Old Leon Road at South Corner of Winchester Road & Thompson Road | GS/TC | Road |
| 24 | North side of Benton Road at Leon Road | GS/TC | Road |
| 25 | South side of Benton Road at Leon Road | GS/TC | Road |
| 26 | North side of Auld Road at Leon Road | GS/TC | Road & Distribution OH |
| 27 | South side of Auld Road at Leon Road | GS/TC | Road & Distribution OH |
| 28 | North side of Murrieta Hot Springs Road and Chandler Drive | GS/TC | Road |
| 29 | South side of Murrieta Hot Springs | GS/TC | Road |

|  |  |  |  |
| --- | --- | --- | --- |
| **Guard Structure Number** | **Location1** | **Guard Method2** | **Crossing Type** |
|  | Road and Chandler Drive |  |  |
| 30 | North side of Nicolas Road ~970 feet west of Calle Medusa | GS/TC | Road & Distribution OH |
| 31 | South side of Nicolas Road ~970 feet west of Calle Medusa | GS/TC | Road & Distribution OH |
| **Notes:**  \*Acronyms: BT = boom truck; OH = overhead; GS = guard structure; TC = traffic control  1 These crossing locations, which have been identified based on preliminary engineering, could be protected with guard structures, boom trucks, and/or traffic control when subtransmission conductor span sections are being pulled. These locations may be subject to change upon further review and requirements as identified in the final engineering. (Also, please refer to Figure 3.7 Proposed Pull & Tension Sites, Splicing Sites and Guard Structures).  2 The methods used to guard the various crossings would be wood pole type guard structures (GS), or specially modified  boom trucks or cranes (BT), or flagmen controlling traffic (TC).  3 A boom truck will be utilized in the area adjacent to the railroad track. | | | |

* + 1. **Subtransmission Line Construction (Below Ground)**

The following sections describe the below-ground construction activities associated with installing the subtransmission line segments for the Proposed Project.

## Trenching

* + - * 1. **Subtransmission Survey**

Construction activities would begin with the survey of existing underground utilities along the proposed underground subtransmission source line route. SCE would notify all applicable utilities via Underground Service Alert to locate and mark existing utilities and conducting exploratory excavations (potholing) as necessary to verify the location of existing utilities. SCE would secure encroachment permits for trenching in public streets, as required.

## Subtransmission Trenching

The Proposed Project includes a total of approximately 1,800 feet of new underground 115 kV subtransmission lines and associated transition and support structures. An approximately 20- to 24-inch wide by 60-inch deep trench would be required to place the 115 kV subtransmission line underground. This depth is required to meet the minimum 36 inches of cover above the duct bank. Trenching may be performed by using the following general steps, including but not limited to: mark the location and applicable underground utilities, lay out trench line, saw cut asphalt or concrete pavement as necessary, dig to appropriate depth with a backhoe or similar equipment, and install the new duct bank. Once the duct bank has been installed, the trench would typically be backfilled with a cement slurry mix. Excavated materials would be reused as

fill for the Proposed Project and/or be disposed of at an off-site disposal facility in accordance with applicable laws. A list of likely off-site disposal facilities within a 50-mile radius of the Proposed Project is included in Table 3.7 Off-Site Disposal Facilities. Should groundwater be encountered, it would be pumped into a tank and disposed of at an off-site disposal facility in accordance with applicable laws.

## Table 3.7 Off-Site Disposal Facilities

|  |  |  |
| --- | --- | --- |
| **Disposal Facility** | **City** | **Distance** |
| Lamb Canyon Landfill | Beaumont | Approximately 20 miles driving distance from Valley Substation |
| San Timoteo Sanitary Landfill | Redlands | Approximately 30 miles driving distance from Valley Substation |
| Mid Valley Landfill | Rialto | Approximately 41 miles driving distance from Valley Substation |

The trench for underground construction would be widened and shored where appropriate to meet California Occupation and Safety Health Administration (CAL-OSHA) requirements. Trenching would be staged so that open trench lengths would not exceed that which is required to install the duct banks. Where needed, open trench sections would have steel plates placed over them in order to maintain vehicular and pedestrian traffic. Provisions for emergency vehicle access would be arranged with local jurisdictions in advance of construction activities.

In the event that potentially contaminated soil is encountered during excavation of the trench, work would stop at that location and SCE's Spill Response Coordinator would be called to the site to make an assessment and notify the proper authorities. Work would continue at that location only when given clearance by the Spill Response Coordinator. The potentially contaminated soil would be segregated into lined stockpiles or, placed in dump trucks or roll-off containers, sampled, and tested to determine appropriate handling, treatment and disposal options. If the soil is classified as hazardous, it would be properly managed on location and transported in accordance with United States Department of Transportation regulations using a Uniform Hazardous Waste Manifest to a Class I Landfill or other appropriate soil treatment or recycling facility. All hazardous materials would be transported, used, and disposed of in accordance with applicable rules, regulations, and SCE protocols designed to protect the environment, workers, and the public.

## Subtransmission Vault Installation

Vaults are below-grade concrete enclosures where the duct banks terminate. The vaults are constructed of prefabricated steel-reinforced concrete and designed to withstand heavy truck traffic loading. The inside dimensions of the underground vaults would be approximately 10 feet

wide by 20 feet long with an inside height of 9.5 feet. The vaults would be placed approximately 500 to 1,500 feet apart along the underground portion of the subtransmission source line.

Initially, the vaults would be used as pulling locations to pull cable through the conduits. After the cable is installed, the vaults would be utilized to splice the cables together. During operation, the vaults would provide access to the underground cables for maintenance, inspections, and repairs.

Installation of each vault would typically take place over a one-week period depending on soil conditions. First, the vault pit would be excavated and shored; a minimum of 6 inches of mechanically compacted aggregate base would be placed to cover the entire bottom of the pit, followed by delivery and installation of the vault. Once the vault is set, grade rings and the vault casting would be added and set to match the existing grade. The excavated area would be backfilled with a sand slurry mix to a point just below the top of the vault roof. Excavated materials, if suitable, would be used to backfill the remainder of the excavation and any excess spoils would be disposed of at an off-site disposal facility in accordance with all applicable laws. Finally, the excavated area would be restored as required.

## Fiber Optic Installation

*This section is not applicable to the Proposed Project.*

## 3.7.3.2 Trenchless Techniques: Microtunnel, Bo re and Jack, Horiz ontal Directional Drilling

The Proposed Project would not utilize trenchless techniques to support construction activities.

## Substation Construction

The following section describes the construction activities associated with installing the components of the Valley and Triton Substations for the Proposed Project.

## Site Preparation and Grading

The areas where the ground is disturbed, to accommodate these facilities, will be backfilled with native on-site soil and compacted to 90- to 95-percent relative compaction. These areas are currently covered with ¾-inch crushed aggregate rock and would be restored back to the same condition upon completion.

## Ground Surface Improvements

*This section is not applicable to the Proposed Project.*

## Below-Grade Construction

Modifications to below-grade facilities located at Valley Substation include, but are not limited to, installation of a ground grid, equipment foundations, conduits, duct banks, vaults, and manholes. Below-grade construction would involve the drilling and digging of holes for the foundations. For additional information regarding below-grade construction, see sections

3.7.3.1.2 and 3.7.3.1.3.

## Above-Grade Construction

Above-grade installation of substation facilities such as buses, capacitor banks, switchracks, disconnect switches, circuit breakers, and steel support structures would follow the construction of the below-grade facilities. Installation of such facilities within the existing Valley Substation will include making connections or utilizing existing buses, cable trenches, and steel structures to integrate the new facilities in with the existing.

## Distribution Gateway Construction

*This section is not applicable to the Proposed Project.*

## Telecommunications Equipment Installation

The new telecommunications equipment would be installed at the existing Valley and Triton Substations. All new telecommunications equipment installations at the existing substations would occur within the existing MEER; therefore, no additional ground disturbance is associated with this proposed substation work.

Existing roads in the Proposed Project area are adequate to provide access for installation of the proposed telecommunication facilities.

## Landscaping

There are no landscape plans required for the Proposed Project.

## Substation Land Disturbance Table

*This section is not applicable to the Proposed Project.*

## Modifications at Other Facilities

The following section describes the construction activities associated with modifying the components of SCE’s existing Valley Substation for the Proposed Project.

New equipment foundations would be required and would result in soil excavation that would be exported. The approximate surface area and volumes for the below-grade components of the modifications proposed at SCE’s existing Valley Substation are shown in Table 3.8 Substation Cut and Fill Grading Summary.

## Table 3.8 Substation Cut and Fill Grading Summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Material** | **Approximate Surface Area (Square Feet)** | **Approximate Volume (Cubic Yards)** |
| Substation equipment foundations, cut | Soil | 366 | 82.44 |
| Other Surfacing | Concrete | 366 | 67.63 |

* + - 1. **Land Disturbance Summary**

Land disturbance would include all areas affected by construction of the Proposed Project. It is estimated that the total permanent land disturbance for the Proposed Project would be 14.2 acres, while the temporary land disturbance would be 179 acres. The estimated amount of land disturbance for each project component is summarized in Table 3.9 Valley South 115 kV Subtransmission Project Estimated Land Disturbance.

## Table 3.9 Valley South 115 kV Subtransmission Project Estimated Land Disturbance

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Feature** | **Acres Disturbed During Construction** | **Acres to be Restored** | **Acres Permanently Disturbed** |
| Subtransmission | 179.7 | 165.5 | 14.2 |
| Distribution Relocation | 13.8 | 13.8 | 0 |
| **Total** | **193.5** | **179.3** | **14.2** |

**3.7.5 Construction Workforce and Equipment**

The estimated elements, materials, and number of personnel and equipment required for construction of the Proposed Project are summarized in Table 3.10-A through Table 3.10-C Construction Equipment and Workforce Estimate.

Construction would be performed by either SCE construction crews or contractors. If SCE construction crews are used, they typically would be based at SCE’s local facilities, (e.g., service centers, substation, transmission ROW, etc.) or a temporary material staging yard set up for the Proposed Project. Contractor construction personnel would be managed by SCE construction management personnel and based out of the contractor’s existing yard, SCE’s substation, or temporary material staging yard set up for the Proposed Project. SCE anticipates a total of

approximately 67 construction personnel working on any given day. SCE anticipates that crews would work concurrently whenever possible; however, the estimated deployment and number of crew members would vary depending on factors such as material availability, resource availability, and construction scheduling.

In general, construction efforts would occur in accordance with accepted construction industry standards. If feasible, SCE would comply with local ordinances for construction activities.

Subtransmission

Construction would be performed by either SCE construction crews and/or contractors. SCE anticipates that crews would work concurrently from time to time, depending on material availability and construction scheduling. SCE anticipates a total of approximately 55 subtransmission and distribution construction personnel working on any given day on this project component.

## Table 3.10-A Subtransmission Construction Equipment and Workforce Estimates

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| **Survey1** | | | | **4** | **15** |  | **15.4 Miles** |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 |  |  | 8 |  |
| **Marshalling Yard2** | | | | **4** |  |  |  |
| 1-Ton Truck, 4x4 | 300 | Gas | 1 |  | Duration of Project At Each Yard | 4 |  |
| R/T Forklift | 125 | Diesel | 1 | 6 |
| Boom/Crane Truck | 350 | Diesel | 1 | 2 |
| Water Truck | 300 | Diesel | 1 | 8 |
| Truck, Semi- Tractor | 400 | Diesel | 1 | 2 |
|  | | | | **5** | **39** |  | **400 feet &**  **303 Pads** |
| **Roads & Landing Work3** | | | |
|  | | | |
| 1-Ton Truck, 4x4 | 300 | Gas | 1 |  |  | 8 |  |
| Backhoe/Front Loader | 125 | Diesel | 1 | 4 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| Track Type Dozer | 150 | Diesel | 1 |  |  | 4 |  |
| Motor Grader | 250 | Diesel | 1 | 6 |
| Water Truck | 300 | Diesel | 1 | 8 |
| Drum Type Compactor | 100 | Diesel | 1 | 6 |
| Excavator | 250 | Diesel | 1 | 4 |
| Lowboy Truck/Trailer | 450 | Diesel | 1 | 4 |
| **Tree Trim & Removal** | | | | **5** | **12** |  | **27 Trees** |
| 1-Ton Truck | 300 | Gas | 1 |  |  | 8 |  |
| Debris Haul Truck | 300 | Diesel | 1 | 8 |
| Manlift/Bucket Truck | 250 | Diesel | 1 | 8 |
| Chipper | 48 | Diesel | 1 | 8 |
| Stump Grinder | 30 | Diesel | 1 | 4 |
|  | | | | **6** | **9** |  | **31**  **Structures** |
| **Guard Structure Installation4** | | | |
|  | | | |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 1 |  |  | 8 |  |
| 1-Ton Truck, 4x4 | 300 | Gas | 1 | 8 |
| Compressor Trailer | 60 | Diesel | 1 | 4 |
| Manlift/Bucket Truck | 250 | Diesel | 1 | 4 |
| Boom/Crane Truck | 350 | Diesel | 1 | 6 |
| Auger Truck | 210 | Diesel | 1 | 4 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| Extendable Flat Bed Pole Truck | 400 | Diesel | 1 |  |  | 8 |  |
|  | | | | **20** | **7** |  | **3.4 Circuit Miles** |
| **Relocate Existing Conductor and OHGW5** | | | |
|  | | | |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 |  |  | 4 |  |
| Manlift/Bucket Truck | 250 | Diesel | 2 | 8 |
| Boom/Crane Truck | 350 | Diesel | 2 | 8 |
| Bull Wheel Puller | 350 | Diesel | 1 | 6 |
| Sock Line Puller | 300 | Diesel | 1 | 6 |
| Static Truck/ Tensioner | 350 | Diesel | 1 | 6 |
| Material Handling Truck | 315 | Diesel | 1 | 8 |
| Lowboy Truck/Trailer | 450 | Diesel | 2 | 4 |
| **Wood/Wood Guy Stub Pole/LWS Pole Removal6** | | | | **6** | **6** |  | **40 Poles** |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 |  |  | 8 |  |
| Compressor Trailer | 60 | Diesel | 1 | 4 |
| Backhoe/Front Loader | 125 | Diesel | 1 | 6 |
| Manlift/Bucket Truck | 250 | Diesel | 1 | 6 |
| Boom/Crane Truck | 350 | Diesel | 1 | 6 |
| Flat Bed Pole | 400 | Diesel | 1 | 8 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| Truck |  |  |  |  |  |  |  |
| **Install TSP Foundations7** | | | | **6** | **60** |  | **30 TSPs** |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 1 |  |  | 4 |  |
| Boom/Crane Truck | 350 | Diesel | 1 | 4 |
| Backhoe/Front Loader | 125 | Diesel | 1 | 6 |
| Auger Truck | 210 | Diesel | 1 | 6 |
| Water Truck | 300 | Diesel | 1 | 8 |
| Dump Truck | 350 | Diesel | 1 | 4 |
| Material Handling Truck | 315 | Diesel | 1 | 8 |
| Concrete Mixer Truck | 350 | Diesel | 3 | 2 |
| **TSP Haul8** | | | | **4** | **9** |  | **30 TSPs** |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 1 |  |  | 8 |  |
| Boom/Crane Truck | 350 | Diesel | 1 | 6 |
| Flat Bed Pole Truck | 400 | Diesel | 1 | 8 |
| **TSP Assembly9** | | | | **8** | **30** |  | **30 TSPs** |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 2 |  |  | 4 |  |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 | 4 |
| Compressor Trailer | 60 | Diesel | 1 | 6 |
| Material | 315 | Diesel | 1 | 8 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| Handling Truck |  |  |  |  |  |  |  |
| Boom/Crane Truck | 350 | Diesel | 1 | 8 |
| **TSP Erection10** | | | | **8** | **30** |  | **30 TSPs** |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 2 |  |  | 4 |  |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 | 4 |
| Compressor Trailer | 60 | Diesel | 1 | 4 |
| Boom/Crane Truck | 350 | Diesel | 1 | 8 |
|  | | | | **4** | **47** |  | **266 Wood**  **&**  **12 LWS**  **Poles** |
| **Wood/Wood Guy Stub Pole/LWS Pole Haul11** | | | |
|  | | | |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 1 |  |  | 8 |  |
| Boom/Crane Truck | 350 | Diesel | 1 | 6 |
| Flat Bed Pole Truck | 400 | Diesel | 1 | 8 |
|  | | | | **8** | **65** |  | **266 Wood**  **&**  **12 LWS**  **Poles** |
| **Wood/LWS Pole Assembly12** | | | |
|  | | | |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 2 |  |  | 4 |  |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 | 4 |
| Compressor Trailer | 60 | Diesel | 1 | 6 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| Material Handling Truck | 315 | Diesel | 1 |  |  | 8 |  |
| Boom/Crane Truck | 350 | Diesel | 1 | 8 |
| **Install Wood/Wood Guy Stub Pole/LWS Pole/Anchor13** | | | | **6** | **70** |  | **278 Poles** |
| 1-Ton Truck, 4x4 | 300 | Gas | 1 |  |  | 8 |  |
| Manlift/Bucket Truck | 250 | Diesel | 1 | 6 |
| Boom/Crane Truck | 350 | Diesel | 1 | 6 |
| Auger Truck | 210 | Diesel | 1 | 4 |
| Backhoe/Front Loader | 125 | Diesel | 1 | 8 |
| Material Handling Truck | 315 | Diesel | 1 | 8 |
| Extendable Flat Bed Pole Truck | 400 | Diesel | 1 | 8 |
|  | | | | **20** | **13** |  | **51**  **Structures** |
| **Reconfigure Existing Structures14** | | | |
|  | | | |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 2 |  |  | 4 |  |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 | 4 |
| Compressor Trailer | 60 | Diesel | 1 | 6 |
| Material Handling Truck | 315 | Diesel | 1 | 8 |
| Boom/Crane Truck | 350 | Diesel | 1 | 8 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
|  | | | | **24** | **75** |  | **15.4 Miles Conductor**  **9 Circuit Miles Ground Wire** |
| **Install Conductor & Ground Wire15** | | | |
|  | | | |
| 1-Ton Truck, 4x4 | 300 | Gas | 3 |  |  | 4 |  |
| Manlift/Bucket Truck | 250 | Diesel | 4 | 8 |
| Boom/Crane Truck | 350 | Diesel | 1 | 8 |
| Boom/Truck (guard) | 350 | Diesel | 4 | 2 |
| Dump Truck | 350 | Diesel | 1 | 2 |
| Wire Truck/ Trailer | 350 | Diesel | 2 | 6 |
| Sock Line Puller | 300 | Diesel | 1 | 6 |
| Bull Wheel Puller | 350 | Diesel | 1 | 6 |
| Static Truck/ Tensioner | 350 | Diesel | 1 | 6 |
| Backhoe/Front Loader | 125 | Diesel | 1 | 2 |
| Material Handling Truck | 315 | Diesel | 1 | 8 |
| Lowboy Truck/Trailer | 450 | Diesel | 2 | 4 |
|  | | | | **6** | **9** |  | **31**  **Structures** |
| **Guard Structure Removal16** | | | |
|  | | | |
| 3/4-Ton Truck, 4x4 | 275 | Gas | 1 |  |  | 8 |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| 1-Ton Truck, 4x4 | 300 | Gas | 1 |  |  | 8 |  |
| Compressor Trailer | 60 | Diesel | 1 | 4 |
| Manlift/Bucket Truck | 250 | Diesel | 1 | 4 |
| Boom/Crane Truck | 350 | Diesel | 1 | 6 |
| Extendable Flat Bed Pole Truck | 400 | Diesel | 1 | 8 |
| Backhoe/Front Loader | 125 | Diesel | 1 | 6 |
| **Restoration17** | | | | **7** | **15** |  | **15.4 Miles** |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 |  |  | 4 |  |
| Backhoe/Front Loader | 125 | Diesel | 1 | 4 |
| Motor Grader | 250 | Diesel | 1 | 6 |
| Water Truck | 300 | Diesel | 1 | 8 |
| Drum Type Compactor | 100 | Diesel | 1 | 4 |
| Lowboy Truck/Trailer | 450 | Diesel | 1 | 4 |
| **Vault Installation18** | | | | **6** | **9** |  | **3 Vaults** |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 |  |  | 4 |  |
| Backhoe/Front Loader | 125 | Diesel | 1 | 8 |
| Excavator | 250 | Diesel | 1 | 6 |
| Dump Truck | 350 | Diesel | 2 | 8 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| Water Truck | 300 | Diesel | 1 |  |  | 8 |  |
| Crane (L) | 500 | Diesel | 1 | 6 |
| Concrete Mixer Truck | 350 | Diesel | 3 | 2 |
| Lowboy Truck/Trailer | 450 | Diesel | 1 | 4 |
| Material Handling Truck | 315 | Diesel | 1 | 8 |
| Flat Bed Truck/Trailer | 400 | Diesel | 3 | 4 |
|  | | | | **6** | **7** |  | **1,600 Feet Trench** |
| **Duct Bank Installation19** | | | |
|  | | | |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 |  |  | 4 |  |
| Compressor Trailer | 60 | Diesel | 1 | 4 |
| Backhoe/Front Loader | 125 | Diesel | 1 | 6 |
| Dump Truck | 350 | Diesel | 2 | 6 |
| Pipe Truck/Trailer | 275 | Diesel | 1 | 6 |
| Water Truck | 300 | Diesel | 1 | 8 |
| Concrete Mixer Truck | 350 | Diesel | 3 | 2 |
| Lowboy Truck/Trailer | 450 | Diesel | 1 | 4 |
| **Install Underground Cable20** | | | | **8** | **2** |  | **1,800 Feet** |
| 1-Ton Truck, 4x4 | 300 | Gas | 2 |  |  | 4 |  |
| Manlift/Bucket Truck | 250 | Diesel | 1 | 6 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| Boom/Crane Truck | 350 | Diesel | 1 |  |  | 6 |  |
| Wire Truck/Trailer | 350 | Diesel | 2 | 6 |
| Pulling Rig | 350 | Diesel | 1 | 6 |
| Material Handling Truck | 315 | Diesel | 1 | 8 |
| Static Truck/ Tensioner | 350 | Diesel | 1 | 6 |
| **DISTRIBUTION RELOCATION** | | | | | | | |
| **Relocate Existing Conductor21** | | | | **4** | **167** |  | **8 miles** |
| Foreman Truck | 300 | Diesel | 1 |  |  | 8 |  |
| Reel Truck | 300 | Diesel | 1 | 8 |
| Bucket Truck | 300 | Diesel | 1 | 8 |
| Arrow Board Trailer | 0 | Solar/ Electric | 1 | 8 |
| Flatbed Truck | 400 | Diesel | 1 | 8 |
|  | | | | **3** | **41** |  | **230 Wood Poles** |
| **Wood Pole Removal22** | | | |
|  | | | |
| Foreman Truck | 300 | Diesel | 1 |  |  | 8 |  |
| Lineman/Boom Truck | 300 | Diesel | 1 | 8 |
| Flatbed Trailer | 400 | Diesel | 1 | 8 |
| Arrow Board Trailer | 0 | Solar/ Electric | 1 | 8 |
| **Install Distribution Underground Cable23** | | | | **7** | **20** |  | **900 Feet** |
| Crew Truck | 300 | Diesel | 1 |  |  | 8 |  |
| Foreman Truck | 300 | Diesel | 1 | 8 |
| Reel Truck | 300 | Diesel | 1 | 8 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Day)** | **Estimated Production** |
| Rodder Truck | 400 | Diesel | 1 |  |  | 8 |  |
| Concrete Mixer Truck | 350 | Diesel | 1 | 8 |
| 1-Ton Truck, 4x4 | 300 | Gas | 1 | 8 |
| Backhoe/Front Loader | 125 | Diesel | 1 | 8 |
| Lowboy Truck/Trailer | 450 | Diesel | 1 | 8 |
| **Notes:**  All data provided in this table is based on planning-level assumptions and may change based on any of the following: the completion of final engineering; any updates and/or changes in project scope; any updates and/or changes to the project description; any changes to existing field conditions and/or the identification of yet unknown field conditions; outage constraints; the availability of labor, material, and equipment; as well as any constraints caused by environmental and/or permitting requirements.  1 Survey = one 4-man crew  2 Marshalling Yards = one 4-man crew  3 Roads & Landing Work = one 5-man crew  4 Guard structure installation = one 6-man crew  5 Relocate Existing Conductor & Ground Wires = two 10-man crews  6 Remove Existing Wood/Wood Guy Stub Poles/LWS Poles = one 6-man crew  7 Install Foundations for TSPs = one 6-man crew  8 TSP Haul = one 4-man crew  9 TSP Assembly = one 8-man crew  10 TSP Erection = one 8-man crew  11 Wood/Wood Guy Stub Pole/LWS Pole Haul = one 4-man crew  12 Wood/LWS Pole Assembly = one 8-man crew  13 Install Wood/Wood Guy Stub Pole/LWS Pole/Anchor = one 8-man crew  14 Reconfigure Existing Structures = two 10-man crews  15 Conductor Installation = two 10-man crews  16 Guard Structure Removal = one 6-man crew  17 Restoration = one 7-man crew, It is estimated that 2 of the 12 miles will not require restoration efforts based on current access and field conditions.  18 Vault Installation = one 6-man crew  19 Duct Bank Installation = one 6-man crew  20 Install Underground Cable = one 8-man crew  21 Relocate Existing Conductor = one 4-man crew  22 Remove Existing Wood Poles = one 4-man crew  23 Underground Cable Installation = one 4-man crew | | | | | | | |

Substation

Construction would be performed by either SCE construction crews and/or contractors. If SCE construction crews are used, they typically would be based at SCE’s local facilities, (e.g., service centers, substation, transmission ROW, etc.) or a temporary material staging yard set up for the Proposed Project. SCE anticipates a total of approximately 10 construction personnel working on any given day on this project component. SCE anticipates that crews would work concurrently from time to time, depending on factors such as material availability, resource availability, and construction scheduling.

In general, construction efforts would occur in accordance with accepted construction industry standards. If feasible, SCE would comply with local ordinances for construction activities.

## Table 3.10-B Substation Construction Equipment and Workforce Estimates

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hrs/Days)** | **Estimated Production** |
| Boom Truck | 300 | Diesel | 1 | 2 | 30 | 7 | N/A |
| Crew Truck | 200 | Diesel or Gasoline | 3 | 2 | 40 | 2 | N/A |
| Flat Bed | 300 | Diesel | 1 | 2 | 40 | 2 | N/A |
| Lift Truck | 200 | Gasoline | 1 | 2 | 30 | 7 | N/A |
| Tool Trailer | N/A | Electric | 1 | 2 | 40 | 8 | N/A |
| Skid Steer | 80 | Diesel | 1 | 1 | 15 | 7 | N/A |
| Backhoe | 80 | Diesel | 1 | 1 | 15 | 7 | N/A |
| Dump Truck | 350 | Diesel | 3 | 1 | 15 | 7 | N/A |
| Water Truck | 350 | Diesel | 1 | 1 | 15 | 7 | N/A |
| Foundation Auger | 80 | Diesel | 1 | 1 | 5 | 7 | N/A |
| Concrete Mixer Truck | 350 | Diesel | 4 | 1 | 5 | 4 | N/A |

Telecommunication

Construction would be performed by either SCE construction crews or contractors. SCE anticipates that crews would work concurrently from time to time depending on permitting, material availability, and construction scheduling.

SCE anticipates a total of approximately seven construction personnel working on any given day on this project component.

## Table 3.10-C Telecommunication System Construction Equipment and Workforce Estimates

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary Equipment Description** | **Estimated Horse- Power** | **Probable Fuel Type** | **Primary Equipment Quantity** | **Estimated Workforce** | **Estimated Schedule (Days)** | **Duration of Use (Hours)** | **Estimated Production Per Day**  **(poles)** |
| Bucket Truck | 300 | Diesel | 2 | 4 | 4 | 8 | 8 |
| Pick Up Truck | 250 | Diesel | 1 | 1 | 4 | 8 | N/A |
| Van | 200 | Gasoline | 2 | 2 | 2 | 4 | 8 |

**3.7.5.1 Equipment Description**

Table 3.11 Construction Equipment Description lists the equipment SCE expects to use during construction and a brief description of the use of that equipment.

## Table 3.11 Construction Equipment Description

|  |  |
| --- | --- |
| **Equipment Type** | **Use Description** |
| 1-Ton Truck, 4x4 | Transport workers and material |
| 3/4-Ton Truck, 4x4 | Transport workers and material |
| Arrow Board Trailer | Traffic control sign |
| Auger Truck | Light/medium duty - dig holes for poles |
| Backhoe/Front Loader | Medium duty - grades soil, loads dirt into dump trucks |
| Boom/Crane Truck | Light/medium duty - lifts/places material |
| Bucket Truck | Lift and transport workers |
| Bull Wheel Puller | Provides tension on conductor/ground wire during stringing operation |
| Chipper | Breaks down trees/vegetation after removal |
| Compressor Trailer | Provides compressed air for pneumatic tools |
| Concrete Mixer Truck | Delivers and mixes concrete for job site |

|  |  |
| --- | --- |
| **Equipment Type** | **Use Description** |
| Crane (L) | Heavy duty - lifts/places material |
| Crew Truck | Transports workers and materials |
| Debris Haul Truck | Hauls removed trees/vegetation |
| Drum Type Compactor | Compacts soil |
| Dump Truck | Imports/exports material |
| Excavator | Excavates and/or moves native soil |
| Extendable Flat Bed Pole Truck | Hauls poles |
| Flat Bed Pole Truck | Hauls poles |
| Flat Bed Truck/Trailer | Hauls material |
| Lowboy Truck/Trailer | Hauls material |
| Manlift/Bucket Truck | Lifts and transports workers |
| Material Handling Truck | Hauls material |
| Motor Grader | Medium duty - grades terrain |
| Pick-up Truck | Transport workers and material |
| Pipe Truck/Trailer | Hauls material |
| Puller | Pulls conductor/ground wire during stringing operation |
| Rodder Truck | Cable installation |
| Reel Truck | Cable and wire hauling |
| R/T Forklift | Lifts and transports material in rough terrain |
| Sock Line Puller | Pulls sock line during stringing operation |
| Static Truck/ Tensioner | Provides tension on conductor/ground wire during stringing operation |
| Stump Grinder | Grinds down tree stump after tree removal |
| Track Type Dozer | Heavy duty - grades terrain |
| Truck, Semi-Tractor | Transports material |
| Van | Transport workers and material |
| Water Truck | Wets access roads to mitigate fugitive dust/ improve compaction |
| Wire Truck/Trailer | Hauls conductor/ground wire to job site, hold conductor/ground wire during stringing operation |

* + 1. **Construction Schedule**

SCE anticipates that construction of the Proposed Project would take approximately 16 months.6 Construction would commence following CPUC approval, final engineering, procurement activities, land rights acquisition, and receipt of all applicable permits.

The anticipated operational date of January 2020 assumes a 26-month CPUC regulatory review and a 16-month construction schedule. However, the operating date may be accelerated if the regulatory process can be expedited or SCE can further compress its construction schedule.

## Table 3.12 Proposed Construction Schedule

|  |  |  |
| --- | --- | --- |
| **Project Activity** | **Approximate Duration (Months)** | **Approximate Start Date** |
| PTC | N/A | February 2017 |
| Final Engineering | 11 | January 2017 |
| Right-of-way/Property Acquisition | 8 | December 2016 |
| Acquisition of Required Permits | 12 | March 2017 |
| Substation Construction | 6 | March 2018 |
| Subtransmission Line Construction | 16 | June 2018 |
| Telecommunications Construction | 3 | July 2019 |
| Distribution Construction | 3 | July 2019 |
| Clean up | 3 | November 2019 |
| Project Operational | N/A | January 2020 |

* + 1. **Energizing Transmission and Subtransmission Lines**

Energizing the new lines is the final step in completing the transmission and subtransmission construction. The existing 115 kV circuits: Valley-Auld, Valley-MWD-Stetson, Valley-Auld- Triton, Auld-Moraga #2, and Pauba-Triton; the existing 33 kV circuit: Skinner; and existing 12 kV circuits: Flats, Livermore, Equinox, Sundance, Appaloosa, Keller, Colt, Shetland, Beeler, Shipley, and Argonaut, would be de-energized in order to connect the new line segments to the existing system. To reduce the need for electric service interruption, de-energizing and re- energizing the existing lines may occur at night when electrical demand is low.

6 The proposed construction schedule does not account for unforeseen project delays, including but not limited to those due to inclement weather and/or stoppage necessary to protect biological resources (e.g., nesting birds).

# Operation and Maintenance

Ongoing Operation and Maintenance (O&M) activities are necessary to ensure reliable service, as well as the safety of the utility worker and the general public, as mandated by the CPUC. SCE facilities are subject to Federal Energy Regulatory Commission jurisdiction. SCE transmission facilities are under operational control of the California Independent System Operator.

The subtransmission line would be maintained in a manner consistent with CPUC G.O. 95 and

G.O. 128 as applicable, and the National Electrical Safety Code (NESC) for those circuits that are located outside of California. Normal operation of the lines would be controlled remotely through SCE control systems, and manually in the field as required. SCE inspects the subtransmission overhead facilities in a manner consistent with CPUC G.O. 165 a minimum of once per year via ground, but usually occurs more frequently based on system reliability. Maintenance would occur as needed and could include activities such as repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, replacing poles and towers, tree trimming, brush and weed control, and access road maintenance. Most regular O&M activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs done to existing facilities, such as repairing or replacing existing poles and towers, could occur in undisturbed areas. Existing conductors could require re- stringing to repair damages. Some pulling site locations could be in previously undisturbed areas and at times, conductors could be passed through existing vegetation on route to their destination.

Routine access road maintenance is conducted on an annual and/or as-needed basis. Road maintenance includes maintaining a vegetation-free corridor (to facilitate access and for fire prevention) and blading to smooth over washouts, eroded areas, and washboard surfaces as needed. Access road maintenance could include brushing (i.e., trimming or removal of shrubs) approximately 2 to 5 feet beyond berms or road’s edge when necessary to keep vegetation from intruding into the roadway. Road maintenance would also include cleaning ditches, moving and establishing berms, clearing and making functional drain inlets to culverts, culvert repair, clearing and establishing water bars, and cleaning and repairing over-side drains. Access road maintenance includes the repair, replacement and installation of storm water diversion devices on an as-needed basis.

Insulators could require periodic washing with water to prevent the buildup of contaminants (dust, salts, droppings, smog, condensation, etc.) and reduce the possibility of electrical arcing, which can result in circuit outages and potential fire. Frequency of insulator washing is region specific and based on local conditions and build-up of contaminants. Replacement of insulators, hardware, and other components is performed as needed to maintain circuit reliability.

Some pole locations and/or lay down areas could be in previously undisturbed areas and could result in ground and/or vegetation disturbance, though attempts would be made to utilize previously disturbed areas to the greatest extent possible. In some cases new access is created to remove and replace an existing pole. Wood pole testing and treating is a necessary maintenance activity conducted to evaluate the condition of wood structures both above and below ground level. Intrusive inspections require the temporary removal of soil around the base of the pole,

usually to a depth of approximately 12 to 18 inches, to check for signs of deterioration. Roads and trails are utilized for access to poles. For impact prevention, all soil removed for intrusive inspections would be reinstalled and compacted at completion of the testing.

Existing conductors could require re-stringing to repair damages. Some pulling site locations could be in previously undisturbed areas and, at times, conductors could be passed through existing vegetation on route to their destination.

Regular tree pruning must be performed to be in compliance with existing state and federal laws, rules, and regulations and is crucial for maintaining reliable service, especially during severe weather or disasters. Tree pruning standards for distances from overhead lines have been set by the CPUC (G.O. 95, Rule 35), California Public Resource Code 4293, California Code of Regulations Title 14, Article 4, and other government and regulatory agencies. SCE’s standard approach to tree pruning is to remove at least the minimum required by law plus one years’ growth (species dependent).

In addition to maintaining vegetation-free access roads, helipads and clearances around electrical lines, clearance of brush and weeds around poles, and as may be required by applicable regulations on fee owned ROWs, is necessary for fire protection. A 10-foot radial clearance around non-exempt poles (as defined by California Code of Regulations Title 14, Article 4) and a 25-50 foot radial clearance around non-exempt towers (as defined by California Code of Regulations Title 14, Article 4) are maintained in accordance with Public Resource Code 4292.

In addition to regular O&M activities, SCE conducts a wide variety of emergency repairs in response to emergency situations such as damage resulting from high winds, storms, fires, and other natural disasters, and accidents. Such repairs could include replacement of downed poles or lines or re-stringing conductors. Emergency repairs could be needed at any time.

The telecommunications equipment would be subject to maintenance and repair activities on an as needed or emergency basis. Activities would include replacing defective circuit boards, damaged radio antennas or feedlines and testing the equipment. Telecommunication equipment would also be subject to routine inspection and preventative maintenance such as filter change- outs or software and hardware upgrades. Most regular O&M activities of telecommunications equipment are performed at substation or communication sites and inside the equipment rooms and are accessed from existing access roads with no surface disturbance. Access road maintenance is performed as mentioned in the Project Operations Transmission and Subtransmission section above.

The telecommunications cables would be maintained on an as needed or emergency basis. Maintenance activities would include patrolling, testing, repairing and replacing damaged cable and hardware. Most regular maintenance activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs done to existing facilities, such as repairing or replacing existing cables and re-stringing cables, could occur in undisturbed areas. Access and habitat restoration, as mentioned in the Project Operations Transmission and Subtransmission section above, may be required for routine or emergency maintenance activities.

# Applicant Proposed Measures

As part of the Proposed Project SCE has identified 16 Applicant Proposed Measures (APMs) that it plans to implement during construction and/or operation of the Proposed Project to reduce or avoid impacts. SCE would conduct the design, construction, operation, and maintenance of the Proposed Project in accordance with its APMs. The proposed APMs are listed in Table 3.13 Applicant Proposed Measures.

## Table 3.13 Applicant Proposed Measures

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource Section** | **Resource** | **APM**  **Number** | **APM Description** |
| 4.3 | Air Quality | APM AIR-1 | Construction crew vehicle speeds on non-public unpaved roadways would be restricted to 15 miles per hour. |
| APM AIR-2 | Dust suppression would be implemented on all active nonpublic unpaved access roadways (e.g. using water or chemical suppressant). |
| APM AIR-3 | Off-road diesel construction equipment with a rating between 100 and 750 horsepower would be required to use engines compliant with U.S. Environmental Protection Agency Tier 3 non-road engine standards. In the event a Tier 3 engine is not available, that engine would be equipped with a Tier 2 engine and documentation would be provided from a local rental company stating that the rental company does not currently have the required diesel-fueled off-road construction equipment or that the vehicle is specialized and is not available to rent. Similarly, if a Tier 2 engine is not available, that engine would be equipped with a Tier 1 engine and documentation would be provided. |
| 4.4 | Biology | APM BIO-1 | **Preconstruction Survey s and Construction Monitoring** – Preconstruction biological clearance surveys shall be performed at specific construction and other work sites where potential biological resources are located to minimize impacts on special status wildlife and plant species. If special status species are present, biological monitors shall be on- site, as needed, and shall aid crews in implementing avoidance measures during construction. Special status species observations and avoidance measures will be reported to the appropriate wildlife agencies |

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource Section** | **Resource** | **APM**  **Number** | **APM Description** |
|  |  |  | prior to construction in that area. In addition, appropriate agencies will be provided a monthly report summarizing all special status species observations and avoidance measures. |
| APM BIO-2 | **Nesting Bird Preconstruction S urveys –** SCE would conduct preconstruction clearance surveys no more than 7 days prior to construction to determine the location of nesting birds and territories. Nesting survey results and avoidance measures, if applicable, will be reported to the appropriate wildlife agencies prior to construction in that area.  An avian biologist would establish a buffer area around active nest(s) and would monitor construction activities. The buffer would be established based on construction activities, potential noise disturbance levels, and behavior of the species. A monthly report summarizing all active nest observations and avoidance measures will be provided to the appropriate agencies on a monthly basis, during the nesting season, or until all active nests have been determined to be inactive. |
| APM BIO-3 | **Nesting Bird Management Plan–** SCE shall develop a Nesting Bird Management Plan with input from CDFW. The plan shall include (1) nest management and avoidance; (2) field approach (survey methodology, reporting, and monitoring), including information related to areas of occupied habitat for coastal California gnatcatcher; and (3) avian biologist qualifications. Avian biologist(s) shall be subject to review and approval by CDFW, and shall be responsible for determining the buffer area around active nest(s). Biological monitors shall monitor nests and construction activities. |
| APM BIO-4 | **Avian Safe Design –** The 115 kV subtransmission structures would be designed consistent with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (Avian Power Line Interaction Committee, 2006). |
| APM BIO-5 | **Stephens’ Kangaroo Rat and Los Angeles Pocket Mouse Mitigation an d Avoidance -** An SCE qualified biologist shall conduct preconstruction |

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource Section** | **Resource** | **APM**  **Number** | **APM Description** |
|  |  |  | surveys (see APM BIO-1) in suitable habitat for Stephens’ kangaroo rat and Los Angeles pocket mouse at specific work areas along the Proposed Project and Alternative Project for impact avoidance and minimization.  To address impacts to Stephens’ kangaroo rat, within the boundaries of the Stephens’ Kangaroo Rat HCP, SCE shall apply to participate in the plan through an agreement with the Riverside County Habitat Conservation Agency (Riverside County, 1996).  To address impacts to Los Angeles pocket mouse, within the boundaries of the WRCMSHCP Plan Area, SCE shall apply to participate in the WRCMSHCP and shall follow provisions of the WRCMSHCP as they apply to this species.  Stephens’ kangaroo rat and Los Angeles pocket mouse observations and avoidance measures will be reported to the appropriate wildlife agencies prior to construction in that area. In addition, appropriate agencies will be provided a monthly report summarizing all special status species observations and avoidance measures. |
| APM BIO-6 | **Burrowing Ow l Preconstruction Surveys and Monitoring -** A preconstruction nonprotocol burrowing owl survey shall be conducted no more than 30 days prior to commencement of ground- disturbing activities within suitable habitat to determine if any occupied burrows are present. SCE would establish a buffer area around active nest(s) and would monitor construction activities.  If occupied burrows or other evidence of presence are found, adequate buffers shall be established around burrows. Adequate buffers shall be 160 feet from occupied wintering burrows (December 1 through January 31) and 250 feet from occupied breeding burrows during the breeding season (February 1 through August 31). A qualified avian specialist may increase or reduce these buffer distances on a case-by-case basis.  Biologists shall monitor all construction activities that have the potential to impact active burrows. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource Section** | **Resource** | **APM**  **Number** | **APM Description** |
|  |  |  | In addition, potential unavoidable impacts to burrowing owl and its habitat shall be mitigated by participation in the WRCMSHCP. SCE’s participation, as a PSE, shall include following the provisions and measures outlined in the WRCMSHCP.  All reporting requirements would be conducted as described in APMs BIO-1 and BIO-2. |
| APM BIO-7 | **Coastal California Gnatcatcher Impact Minimization and Mitigation –** Avoidance of active nests shall be accomplished through APMs BIO-2 and BIO-3, described above.  In areas of occupied habitat for the coastal California gnatcatcher, a buffer area around active nest(s) would be established by the SCE biologist and provided to USFWS and CDFW for concurrence. The buffer would be established based on construction activities, potential noise disturbance levels, and behavior of the species.  Construction activities in occupied habitat/suitable habitat for the coastal California gnatcatcher will be monitored by a qualified biologist.  SCE shall apply to participate in the WRCMSHCP and shall follow provisions of the WRCMSHCP as they apply to coastal California gnatcatcher. Where Proposed Project design allows, SCE shall avoid or minimize impacts to Diegan and coastal sage scrub vegetation.  All reporting requirements would be conducted as described in APMs BIO-1 and BIO-2. |
|  |  | APM BIO-8 | **Listed Riparian Birds Impact Minimiz ation –** Based on current design, SCE shall avoid direct construction impacts to riparian and other wetland habitats suitable for listed riparian bird species (least Bell’s vireo, southwestern willow flycatcher). Avoidance of active nests shall be accomplished through APMs BIO-2 and BIO-3, described above.  All reporting requirements would be conducted as described in APMs BIO-1 and BIO-2. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource Section** | **Resource** | **APM**  **Number** | **APM Description** |
|  |  | APM BIO-9 | **Quino Checkerspot Butterfly Impact Minimization and Mitigation** – To address impacts to Quino checkerspot butterfly, within the boundaries of the WRCMSHCP Plan Area, SCE shall apply to participate in the WRCMSHCP and shall follow the provisions of the WRCMSHCP as they apply to this species.  All reporting requirements would be conducted as described in APMs BIO-1 and BIO-2. |
|  |  | APM BIO-10 | **Vernal Pool Resources –** A qualified biologist shall conduct preconstruction marking of previously mapped basins suitable to support vernal pool species within the potential Proposed Project Impact Corridor and depict them on construction plans with specifications for avoidance. Facts about the vernal pool habitat and potential impacts from construction and O&M activities shall be included in the WEAP materials. Wet season protocol level surveys for special status vernal pool resources will be conducted prior to construction. If special status species are detected, SCE shall follow the provisions of the WRCMSHCP as they apply to these species.  All reporting requirements would be conducted as described in APMs BIO-1 and BIO-2. |
| 4.5 | Cultural Resources | APM CUL-1 | Impacts to sensitive paleontological resources would be reduced with implementation of a Paleontological Resources Management Plan. |
| 4.16 | Traffic and Transportation | APM TRA-1 | Traffic control or other management plans would be prepared where necessary to minimize Proposed Project impacts on local streets, highways (State Route [SR]74 and SR-79), freeways, or other forms of transportation (Class I and Class II bicycle routes). |
| APM TRA-2 | Where the Proposed Project work area encroaches on a public right-of-way (ROW) and reduces the existing pedestrian path of travel to less than 48 inches wide, alternate pedestrian routing would be provided during construction activities. |

## Environmental Surveys

SCE has conducted biological and cultural/paleontological resources studies and would conduct further focused biological surveys after project approval, but prior to the start of construction. These surveys would identify and/or address any potential sensitive biological resources that may be impacted by the Proposed Project, including the subtransmission line route(s), access roads, construction work areas, and staging yards. Where feasible, the information gathered from these surveys may be used to finalize project design in order to avoid sensitive resources, or to minimize the potential impact to sensitive resources from project-related activities. The results of these surveys would also determine the extent to which environmental specialist construction monitors would be required.

Biological resources in the vicinity of the Proposed Project are presented in detail in Section 4.4, Biological Resources.

Due to drought conditions in 2013 and 2014, additional biological surveys may be conducted in early 2015 to better assess the potential for WRCMSHCP Criteria Area Plant Species or federal and state listed Fairy Shrimp (See Chapter 4.4 for additional information). Adequate conditions permitting, the focused surveys may be conducted spring and winter of 2015 and submitted to the CPUC in a separate report.

Biological surveys are expected to be conducted prior to construction; however, the following biological surveys have been conducted as of spring 2014:

* + - Vegetation mapping. Vegetation mapping following the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland, 1986) identifying vegetation communities within the Proposed Project alignment and 500-foot buffer around the Proposed Project alignment.
    - Floristic Surveys (spring only). Focused plant surveys were conducted for narrow endemic plant and WRCMSHCP criteria area plant species with the potential to occur within the vicinity of the Proposed Project. The special-status plant surveys followed guidelines developed by California Natural Plant Society to identify sensitive species that have the potential to be present in the area.
    - Jurisdictional Drainages and Riparian and Riverine Surveys. A wetland delineation was conducted to describe and map the extent of resources under the jurisdiction of the United States Army Corps of Engineers (USACE), the RWQCB or State Water Resources Control Board (SWRCB), the CDFW, and/or the WRCMSHCP following the guidelines presented in the Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region and other applicable agency guidance documents.
    - Wet-season fairy shrimp surveys. A wet-season fairy shrimp survey was conducted in conformance with USFWS Vernal Pool Branchiopods Presence/Absence Survey Guidelines, issued April 19, 1996 for the Proposed Project. The survey sampled for fairy shrimp and were identified by species.
    - Dry-season fairy shrimp surveys. A dry-season fairy shrimp survey was conducted in conformance with USFWS Vernal Pool Branchiopods Presence/Absence Survey Guidelines, issued April 19, 1996 for the Proposed Project. The survey sampled for fairy shrimp cysts, and the cysts were identified by species.
    - Focused breeding raptor survey. Focused breeding raptor surveys were conducted during breeding season (generally February 1 to August 31) for the Proposed Project. The surveys took place within Segment 1 of the Proposed Project and within a 1-mile buffer zone, and 500 feet of Segment 2 of the Proposed Project.
    - Focused burrowing owl survey. Focused burrowing owl surveys were conducted in the areas affected by the Proposed Project following WRCMSHCP and CDFW Guidelines.
    - Focused Small Mammal Habitat Assessment/Trapping. Focused surveys for Stephens’ kangaroo rat and other small mammals with the potential to occur in the vicinity of the Proposed Project was conducted for the Proposed Project. These assessments and surveys were conducted during the appropriate time of year to detect the species.
    - Focused Least Bell’s Vireo. Focused surveys for least Bell’s vireo were conducted in areas classified as potential habitat. The surveys were conducted according to the USFWS Least Bell’s Survey Guidelines (USFWS, 2001).
    - Focused Southwestern Willow Flycatcher. Focused surveys for southwestern willow flycatcher were conducted in areas classified as potential habitat. The surveys were conducted according to the USFWS survey guidelines (USFWS, 2000).

Within thirty days prior to the start of ground-disturbing activity, the following surveys would be conducted:

* + - Clearance Surveys – A clearance survey would be conducted no more than 30 days prior to the start of construction in a particular area to identify potential plant and animal species that may be impacted by construction activities. Clearance surveys include a field survey by a qualified botanist and wildlife biologist and would be limited to areas directly impacted by construction activities.
    - Active Nests – Work near nesting habitat would be scheduled to take place outside the nesting season when feasible. Within one week to the start of construction in a particular area during nesting season (generally February 1 to August 31), a qualified wildlife biologist would conduct a pre-construction focused nesting survey. If occupied nests are present during the nesting season, SCE biologists would determine appropriate nesting buffers based on a project-specific nesting bird management plan or consultation with the appropriate agencies.

Cultural and paleontological resources in the vicinity of the Proposed Project are presented in detail in Section 4.5, Cultural Resources.

## Worker Environmental Awareness Training

Prior to construction, a WEAP would be developed. A presentation would be prepared by SCE and used to train all site personnel prior to the commencement of work. A record of all trained personnel would be kept. In addition to instruction on compliance with any additional APMs and project mitigation measures developed after the pre-construction surveys, all construction personnel would also receive the following:

* + - A list of phone numbers of SCE environmental specialist personnel associated with the Proposed Project (archaeologist, biologist, environmental coordinator, and regional spill response coordinator);
    - Instruction on the South Coast Air Quality Management District fugitive dust rules;
    - A description of applicable noise construction time and/or noise level limits
    - A review of applicable local, state and federal ordinances, laws and regulations pertaining to historic and paleontological preservation, a discussion of disciplinary and other actions that could be taken against persons violating historic and paleontological preservation laws and SCE policies, a review of paleontology, archaeology, history, prehistory and Native American cultures associated with historical and paleontological resources in the project vicinity inclusive of instruction on what typical cultural and paleontological resources look like, and instruction that if discovered during construction, work is to be suspended in the vicinity of any find and the site foreman and SCE Project Archaeologist or environmental compliance coordinator is to be contacted for further direction;
    - Instruction on the roles of environmental monitors (cultural, paleontological and biological), if present, and the appropriate treatment by on-site personnel of areas designated as Environmentally Sensitive Areas (ESAs).
    - Instruction on the importance of maintaining the construction site inclusive of ensuring all food scraps, wrappers, food containers, cans, bottles, and other trash from the Project area would be deposited in closed trash containers. Trash containers would be removed from the Project as required and would not be permitted to overfill;
    - Instruction on the individual responsibilities under the Clean Water Act, the project SWPPP, site-specific BMPs, and the location of Safety Data Sheets for the project;
    - Instructions to notify the foreman and regional spill response coordinator in case of a hazardous materials spill or leak from equipment, or upon the discovery of soil or groundwater contamination
    - Instructions to cover all holes/trenches at the end of each day
    - A copy of the truck routes to be used for material delivery
    - Instruction that noncompliance with any laws, rules, regulations, or mitigation measures could result in being barred from participating in any remaining construction activities associated with the Proposed Project

## Traffic Control

Construction activities completed within public street ROW would require the use of a traffic control service. If required, these traffic control services would be conducted in accordance with applicable requirements. These traffic control measures would be consistent with those published

in the California Joint Utility Traffic Control Manual (California Inter-Utility Coordinating Committee, 2010).

# Generator Interconnection Facilities Description

*This section is not applicable to the Proposed Project.*

# Generator Interconnection Facilities Construction

*This section is not applicable to the Proposed Project.*

# Other Major Components Description

Other major components, such as, underground water lines, gas pipelines, and water wells have not been identified in the Proposed Project area during preliminary engineering design.

# Other Major Components Construction

As noted above, other major components, such as, underground water lines, gas pipelines, and water wells have not been identified in the Proposed Project area during preliminary engineering design. Therefore, construction activities for new infrastructure are not associated with the Proposed Project at this time. In the event existing infrastructure is discovered during final engineering, SCE will consider all major existing components and coordinate the relocation if necessary.

# Decommissioning

*This section is not applicable to the Proposed Project.*

# Project Alternatives Components Description

The Alternative 115 kV subtransmission line (Alternative Project) would be approximately 19 miles in length and would extend approximately 3.6 miles longer than the Proposed 115 kV subtransmission line (Proposed Project). The Alternative Project would follow an identical route to that of the Proposed Project for approximately 11.6 miles. The Alternative Project also would include the same improvements as the Proposed Project.

At the location where the Alternative Project would deviate from the Proposed Project, the Alternative Project would extend further west and would be located in the City of Murrieta for a longer distance. The Alternative Project would continue west along Scott Road to the intersection of Menifee Road, and then would continue south on Menifee Road for approximately 3 miles, following an existing SCE 115 kV subtransmission line to the intersection of unimproved Clinton Keith Road. From Clinton Keith Road, it would extend east,

until reaching an existing TSP on Benton Road and then extending south along Leon Road until the Alternative Project reaches the Terminal TSP just south of Nicolas Road.

Both the Proposed and Alternative Projects meet the project objectives and follow existing SCE facilities to the extent feasible. However, the Alternative Project is closer to a greater number of sensitive receptors. Additionally, the Alternative Project has the potential to create greater overall impacts to critical habitats, cultural resources, and traffic during construction of the route along SR-79, and may require additional regulatory permits. For these reasons, the Alternative Project was not selected as the proposed subtransmission line route.

An explanation of how the Alternative Project has the potential to create greater overall impacts to critical habitats can be found in Section 4.4, Biological Resources. The Biological Resources section also will explain the types of regulatory permits that may be required. Additionally, a description of how the Alternative Project has the potential to create greater overall impacts to cultural resources can be found in Section 4.5, Cultural and Paleontological Resources, and an explanation of how the Alternative Project has the potential to create greater overall impacts to traffic can be discovered in the Section 4.16, Transportation and Traffic. Furthermore, additional information can be found in Chapter 5 – Comparison of Alternatives.