Southern California Edison's

Preliminary Project Description

I-710 Corridor Project

3.0 PROJECT DESCRIPTION

|1. *Overview*

This section provides a description of Southern California Edison Company's (SCE) I-710 Corridor Project. It should be understood that at the time of preparation of this document, the information included in this description is high level pending additional information from MTA/Caltrans for relocation of all SCE facilities, which includes subtransmission/transmission/telecom routes, property and/or easement and franchise acquisitions.

The 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.

The I-710 Corridor Project includes the following elements:

|2. *Substations*

Option 2 of Alternative 6B and Alternative 6C would require the relocation of the SCE Bandini substation due the configuration of the freeway and freight corridor ramp connections to Washington Blvd. If Option 2 is selected as part of the preferred alternative for the I-710 Corridor Project, further engineering and environmental studies will be conducted to identify a specific relocation site.

|3. *Transmission*

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The 220kV Transmission line relocations will be within the existing SCE fee owned right-of-way ROW, newly acquired fee-owned ROW and newly acquired easements.
The current position of the 220kV circuits along the main portion of the project between the I-405 freeway and the I-91 freeway is situated along the western half of SCE's existing fee ROW. The relocation will require the installation of new structures to be placed along the east side of SCE's ROW after the existing 66kV circuits and bridge tower structures and poles have been removed. The impact to power flow and short circuit studies is expected to be minimal.

The transmission circuits to be relocated are:

- Del Amo-Hinson 220kV
- Hinson-Lighthipe 220kV

Additionally, there are two existing circuits that cross the I-710 north of the I-91 and I-710 interchange. The tower structures supporting these circuits on each side of the I-710 may require replacement to elevate the circuits for compliance to G.O. 95 conductor to ground vertical clearances.
The transmission circuits for potential relocation/elevation are:

- Mesa-Redondo 220kV
- Hinson-La Fresa 220kV

Temporary Emergency Steel Poles:

Heavy steel poles, lightweight steel poles or wood poles would be utilized temporarily to temporarily relocate subtransmission or transmission conductors off of existing structures to provide safe working clearances during construction or removal of facilities.

|4. *Subtransmission*

There are thirty-eight (38) in-service 66kV circuits, which either cross over or run in parallel to the I-710 Corridor project area. The following 66kV systems, located within the Metro West Region, are impacted:

- Hinson 66kV
- Lighthipe 66kV ('AB' & 'DEF' bus sections)
- Laguna Bell 66kV ('DE' bus section)

Many of the 66kV relocations will require new Transmission facilities along public streets where there are currently no existing Transmission facilities. As this project requires the removal of all 66kV facilities from SCE's subject fee owned R/W, SCE will require that MTA acquire new fee owned right of way, new easements, or use existing easements and/or public rights of way for SCE facilities.

|5. *Telecommunications and Distribution Facilities*

There are twenty five (25) 12kV lines that are in parallel with, or crossing the I-710 corridor project area, eighteen (18) telecommunication lines that are in parallel with, or crossing the project area. Many of these facilities will require relocation. Exact details would be determined following completion of additional engineering and identification of field conditions.

3.1 Proposed Project Components

The components of the Proposed Project are described in more detail below:

3.1.1 Substation Description

|6. General intro

Option 2 of Alternative 6B and Alternative 6C would require the relocation of the SCE Bandini substation due the configuration of the freeway and freight corridor ramp connections to Washington Blvd. If Option 2 is selected as part of the preferred alternative for the I-710 Corridor Project, further engineering and environmental studies will be conducted to identify a specific relocation site.

Note: SCE spec ifications are not re quired a nd are specifically o mitted from th is document

SCE considers the California Building Code and the Institute of Electrical and Electronic Engineers (IEEE) 693, R ecommended Practices for S eismic Design of substations when designing substation structures and equipment.

3.1.2 [220] kV Transmission Line Description

|7. Transmission introduction and line description

The Proposed Project would include the following 220kV transmission line elements:

Major rearrangement and relocation of 7- 220kV Transmission lines will be required. It is assumed that all subtransmission (66kV) circuits that are currently located along the eastern side of SCE's ROW between the I-405 and I-91 will be relocated to public streets. Once this is completed, SCE will commence with the removal of the 66kV conductors, wires, structures (lattice bridge towers, lightweight steel poles, wood poles & guys).

The tallest existing structure SCE has is a WZ tower with a maximum height of 180 feet. Crossing over and between the proposed elevated ramps will be extremely challenging. To clear the proposed 98 foot ramp that is called out in MTA's conceptual design, SCE will require structures over 200 feet. Therefore, a new tower design will be required. TSP designs will be limited due to base-plate thickness requirements, 20 degree deflection angles and height limits of 160 feet.

Existing 220kV T/L's impacted:

- MESA-REDONDO 220kV
- LIGHTHIPE-REDONDO 220kV
- LA FRESA-LAGUNA BELL 220kV
- HINSON-LA FRESA 220kV
- HINSON-LIGHTHIPE 220kV
- LIGHTHIPE-LONG BEACH 220kV
- DEL AMO-HINSON 220kV

|8. Transmission structure types

The 220kV transmission route of the proposed project would utilize a combination of LSTs and TSPs.

Table 3.1-C: Typical Transmission Structure Dimensions

Type of Structure	Proposed # of Structures	Approximate Height Above Ground	Approximate Pole Diameter	Approximate Auger hole Depth	Approximate Auger Diameter
Double-Circuit LST	TBD	TBD	TBD	TBD	TBD
Single-Circuit H-Frame	0				
Temporary Shoo-Fly Emergency Steel Poles (ESPs)	TBD	TBD	TBD	TBD	TBD

Note: Specific tower height and spacing would be determined upon final engineering and would be constructed in compliance with CPUC General Order 95.

|9. FAA Marking and Lighting Requirements

Once all Transmission engineering is complete and locations known where FAA notifications are required and recommendations are made, SCE will consult with the FAA to determine detailed requirements.

|10. Transmission insulators

The insulators are polymer insulators. This material is hydrophobic (repels water), and it minimizes the accumulation of surface contaminants such as soot and dirt.

|11. Transmission conductors

Until preliminary engineering is completed, it is unknown as to the type of conductor for this project.

|12. Transmission structure intro

The approximate dimensions of the proposed structure types are shown in Figure 3.1-C, Transmission Structures, and summarized in Table 3.1-C, Typical Transmission Structure

Dimensions. Until preliminary and/or final engineering is completed, it is unknown as to the dimension requirements of all transmission structures would be.

|13. *Transmission structure intro—high raptor concentration*

All transmission facilities would be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (Avian Power Line Interaction Committee, 2006). All transmission facilities would be evaluated for potential collision risk and, where determined to be high risk, lines would be marked with collision reduction devices in accordance with Mitigating Bird Collisions With Power Lines: The State of the Art in 1994 (Avian Power Line Interaction Committee 1994).

|14. *Lattice steel tower description*

Until final transmission and geotech engineering is completed, it is unknown as to the number of transmission structures by type required and the foundation excavation depths and concrete requirements.

|15. *Tubular steel pole description*

Until final transmission and geotech engineering is completed, it is unknown as to the number of transmission structures by type required and the foundation excavation depths and concrete requirements.

|16. *Subtrans and distribution work resulting from trans lines*

Along the corridor in order to relocate the transmission facilities from the west to east side of SCE's existing ROW, the existing 66kV circuits will need to be relocated as previously mentioned to public streets.

3.2 66 kV Subtransmission Line Description

|17. *FAA Marking and Lighting Requirements*

Once all Transmission engineering is complete and locations known where FAA notifications are required and recommendations are made, SCE will consult with the FAA to determine detailed requirements.

|18. *Subtransmission insulators & conductor*

The insulators are polymer insulators. This material is hydrophobic (repels water), and it minimizes the accumulation of surface contaminants such as soot and dirt. Until preliminary engineering is completed, it is unknown as to the type of conductor for this project.

|19. *Subtransmission structure intro*

The approximate dimensions of the proposed structure types are shown in Figure 3.1-H Subtransmission Structures, and summarized in Table 3.1-D Typical Subtransmission Structure Dimensions.

|20. *Subtrans poles intro—high raptor concentration*

The 66kV subtransmission structures would be designed consistent with the Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006 (Avian Power Line Interaction Committee 2006).

|21. *Wood pole description*

Wood poles would be used for the Proposed Project, however until final engineering is completed it is not known at this as to the number and dimensions required. Wood poles would be direct buried to a typical depth equivalent to 10% of the pole length plus 2 feet.

|22. *Lightweight Steel pole description*

Lightweight steel poles (LWS) would be used for the Proposed Project, however until final engineering is completed it is not known at this as to the number and dimensions required.

|23. *Guy wires and stub pole description (for support)*

Until final engineering is completed, it is unknown at this time as to the number of guy wires and stub pole requirements.

|24. *Subtransmission TSP description*

Until final subtransmission engineering is completed, it is unknown as to the number of TSPs that will be required for this project.

|25. *Subtransmission underground description*

Until final subtransmission engineering is completed, it is unknown as to the number of underground vaults that will be required for this project.

|26. *Distribution relocation or underbuild resulting from subtransmission lines*

Until final distribution engineering is completed, it is unknown as to the number of distribution relocations or undersbuilds that will be required for this project.

Table 3.1-D Typical Subtransmission Structure Dimensions

Pole Type	Proposed Number of Structures	Approximate Height Above Ground	Approximate Pole Diameter	Approximate Auger hole Depth	Approximate Auger Diameter

TSP	TBD	TBD	TBD	TBD	TBD
LWS Poles	TBD	TBD	TBD	TBD	TBD
Wood Poles	TBD	TBD	TBD	TBD	TBD

Note: Specific pole height and spacing would be determined upon final engineering and would be constructed in compliance with CPUC General Order 95.

Figure 3.1-D: Subtransmission Line Route Description

Figure 3.1-E: Subtransmission Structures

Telecommunications and Distribution Description

There are twenty five (25) 12kV lines that are in parallel with, or crossing the I-710 corridor project area, eighteen (18) telecommunication lines that are in parallel with, or crossing the project area. Many of these facilities will require relocation. Exact details would be determined following completion of additional engineering and identification of field conditions.

3.3 Proposed Project Construction Plan

|27. Proposed Project Construction Plan

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

3.3.1 General Construction

3.3.1.1 Staging Areas

|28. Materials staging yard

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 staging 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 Plan (SWPPP).

SCE anticipates using one or more of the possible locations listed in Table 3.2-A: Potential Staging Yard Locations, as the staging yard(s) for the Proposed Project. Typically, each yard would be 2 to 10 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, include the application of gravel or crushed rock. Any land that may be disturbed at the staging yard would be restored to preconstruction conditions or to the landowner's requirements following the completion of construction for the Proposed Project.

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 transmission, subtransmission, and/or telecommunications 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 BMP materials (straw wattles, gravel, and silt fences).

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.

Transmission and subtransmission construction 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 3.2-B: Approximate Laydown/Work Area Dimensions, identifies the approximate land disturbance for these construction areas dimensions for the Proposed Project.

|29. *Helicopter Staging*

Table 3.2-A: Potential Staging Yard Locations

Yard Name	Location	Condition	Approx. Area	Project Component
SCE	TBD Substation or Existing Fee-Owned ROW	Disturbed	5-15 Acres	Transmission, Subtransmission & Telecom
Offsite #1	TBD	Disturbed	2-10 Acres	Transmission, Subtransmission & Telecom
Offsite #2	TBD	Disturbed	2-10 Acres	Transmission, Subtransmission & Telecom

Table 3.2-B: Approximate Laydown/Work Area Dimensions

Note – The dimensions on the following table are preferred for construction efficiency, actual dimensions may vary depending on project constraints

Laydown/Work Area Feature	Preferred Size (L x W) *
Guard Structures	100' x 50' (3-Pole Guards)
Lattice Steel Towers	200' x 200'
TSPs	200' x 200'
H-Frames	150' x 100'
LWS/Wood Poles	150' x 100'
Wood Guy Poles	50' x 50'
Stringing Setup Area: Puller	200' x 100'
Stringing Setup Area: Tensioner	500' x 150'
Underground Vaults	10' x 20' x 9.5' inside dimensions

*Dimensions to be determined at time of filing

3.3.1.2 Storm Water Pollution Prevention Plan

|30. 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 Santa Ana Regional Water Quality Resources Control Board. 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.

3.3.1.3 Dust Control

|31. Dust Control

During construction, migration of fugitive dust from the construction sites would be limited by control measures set forth by the applicable Air quality management rule. These measures may include the use of water trucks and other dust control measures.

3.3.1.4 Traffic Control

|32. Traffic control

Construction activities completed within public street rights-of-way would require the use of a traffic control service, and all lane closures would be conducted in accordance with local ordinances and city permit conditions. These traffic control measures would be consistent with those published in the CJUTCM Manual *California Joint Utility Traffic Control Manual.* (California Inter-Utility Coordinating Committee, 2010).

3.4 Transmission and Subtransmission Line Installation

|33. Transmission and Subtransmission Line Segments Installation

The following sections describe the construction activities associated with installing the transmission and subtransmission line segments for the Proposed Project.

3.4.1.1 Access and Spur Roads

|34. Access Roads for Construction and Maintenance

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

This project includes construction on both existing ROW and new ROW. Where construction would take place on existing ROW, it is assumed that most of the existing access roads as well as spur roads would be used. However, it is also assumed that rehabilitation work would be necessary in some locations for existing roads to accommodate construction activities. This work may include:

- Re-grading and repair of existing access and spur roads. These roads would be cleared of vegetation, blade-graded to remove potholes, ruts, and other surface irregularities, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. The graded road would have a minimum drivable width of 14 feet (18 feet wide total with a 2 feet shoulder on each side of the road).

- Drainage structures such as wet crossings, water bars, overside drains and pipe culverts would be installed to allow for construction traffic usage, as well as prevent road damage due to uncontrolled water flow.
- Slides, washouts, and other slope failures would be repaired and stabilized by installing retaining walls or other means necessary to prevent future failures. The type of structure to be used would be based on specific site conditions.

  Where construction would take place in new ROW, new access, and spur roads would be necessary to access the transmission line structure locations.

Similar to rehabilitation of existing roads, all new access and spur road alignments would first be cleared and grubbed of vegetation. Roads would be blade-graded to remove potholes, ruts, and other surface irregularities, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment.

The graded road would have a minimum drivable width of 14 feet (18 feet wide total with a 2 feet shoulder on each side of the road) but may be wider depending on final engineering requirements and field conditions.

Access and spur road gradients would be leveled so that any sustained grade does not exceed 12 percent. Grades of approximately 14 percent would be permitted when such grades do not exceed 40 feet in length and are located more than 50 feet from any other excessive grade or any curve.

All curves would have a radius of curvature of not less than 50 feet, measured at the center line of the usable road surface. Spur roads would be an average of (TBD) feet long and would usually have turnaround areas near the structure locations. Longer or slightly wider spur roads may be needed in some locations. All dead-end spur roads over 500 feet long would include a Y-type or circle-type turnaround.

In addition, drainage structures (e.g., wet crossings, water bars, overside drains, pipe culverts, and energy dissipaters would be installed along spur and access roads to allow for construction equipment usage as well as to prevent erosion from uncontrolled water flow. Slides, washouts, and other slope failures would be repaired and stabilized along the roads by installing retaining walls or other means necessary to prevent future failures. The type of mechanically stabilized earth-retaining structure to be used would be based on site-specific conditions.

It is anticipated that most of the roads constructed to accommodate new construction would be left in place to facilitate future access for operations and maintenance purposes. Gates would be installed where required at fenced property lines to restrict general and recreational vehicular access to road ROWs.

Construction roads across areas that are not required for future maintenance access would be removed and restored after construction is completed. An example of this type of road would be a road constructed to provide access to a splice location during wire-stringing operations. Splice locations are used to remove temporary pulling splices and install permanent splices once the conductor is strung through the stringing travelers located on transmission structures. Access roads to splice locations are sometimes required when a splice location is not accessible from an access or spur road.

3.4.1.2 Structure Site Preparation

|35. *Structure Site Preparation*

The new structure pad locations and laydown/work areas (Table 3.2-B Approximate Construction 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.

|36. *Foundation Installation*

Structure foundations for each LST would consist of four poured-in-place concrete footings, whereas, foundations for each TSP would require a single drilled poured-in-place concrete footing. Actual footing diameters and depths for each of the structure foundations would depend on the soil conditions and topography at each site and would be determined during final engineering.

The foundation process begins with the drilling of the holes for each type of structure. The holes would be drilled using truck or track mounted excavators with various diameter augers to match the diameter requirements of the structure type. LSTs typically require an excavated hole approximately 3 feet to 5 feet in diameter at approximately 20 feet to 45 feet deep; TSPs typically require an excavated hole approximately 3 feet to 6 feet in diameter at approximately 20 feet to 40 feet deep. On average, each footing for a LST structure would project approximately 1 to 4 feet above ground level; TSP footings in residential areas would project approximately 0-2 feet above ground level and, in uninhabited areas, TSP footings would project approximately 1-4 feet above ground level.

The excavated material would be distributed at each structure site, used to backfill excavations from the removal of nearby structures (if any), 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 all applicable laws.

Following excavation of the foundation footings, steel reinforced rebar cages and stub angles (LSTs) would be set, survey positioning would be verified, and concrete would then be placed. Steel reinforced rebar cages and stub angles may be assembled at staging yards and delivered to each structure location by flatbed truck or assembled at the job site. Depending upon the type of structure being constructed, soil conditions, and topography at each site, LSTs (4 foundations each) would require approximately 100 to 560 cubic yards of concrete delivered to each structure location and, TSPs would require approximately 10 to 45 cubic yards of concrete delivered to each structure location.

Slight to severe ground caving is anticipated along the preferred route during the drilling of the LST/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 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.

Conventional construction techniques would generally be used as described above for new foundation installation. Alternative foundation installation methods would be used where conventional methods are not practical. In certain cases, equipment and material may be deposited at structure sites using helicopters or by workers on foot, and crews may prepare the foundations using hand labor assisted by hydraulic or pneumatic equipment, or other methods.

During construction, existing concrete supply facilities would be used where feasible. If concrete supply facilities do not exist in certain areas, a temporary concrete batch plant would be set up in an established material staging yard. Equipment would include a central mixer unit (drum type); three silos for injecting concrete additives, fly ash, and cement; a water tank; portable pumps; a pneumatic injector; and a loader for handling concrete additives not in the silos. Dust emissions would be controlled by watering the area and by sealing the silos and transferring the fine particulates pneumatically between the silos and the mixers.

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

3.4.1.3 Lattice Steel Tower Installation

|37. *Lattice Steel Tower Installation*
|*Applicability: Transmission,*

Lattice Steel Towers (LST) would be assembled within the construction areas at each tower site. See Table 3.2-B for approximate laydown dimensions. Structure assembly begins with the hauling and stacking of steel bundles, per engineering drawing requirements, from a staging yard to each structure location. This activity requires use of several trucks with 40-foot trailers and a rough terrain forklift. After steel is delivered and stacked, crews would proceed with assembly of leg extensions, body panels, boxed sections, and the cages/bridges. Assembled sections would be lifted into place with a crane and secured by a combined erection and torqueing crew. When the steel work is completed, the construction crew may opt to install insulators and wire rollers (travelers) at this time.

If the LST is located in terrain inaccessible by a crane, it is anticipated that a helicopter may be used for the installation of the structure. The use of helicopters for the erection of structures would be similar to methods detailed in Institute of Electrical and Electronic Engineers (IEEE) 951-1996, Guide to the Assembly and Erection of Metal Transmission Structures, Section 9, Helicopter Methods of Construction. See Section 3.2.3.11 for detailed information on helicopter usage.

3.4.1.4 Tubular Steel Pole Installation

|38. *Tubular Steel Pole 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, 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.

TSPs consist of multiple sections. The pole sections would be placed in temporary laydown areas at each pole location. See Table 3.2-B 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.

3.4.1.5 Wood Pole Installation

|39. 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, 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 preconfigured) 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.

|40. Wood Guy Stub Pole Installation

Wood guy stub poles would be installed similarly to wood poles.

3.4.1.6 Lightweight Steel Pole Installation

|41. Lightweight 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, 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 pre-configured, 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.

|42. LWS Stub Pole Installation

Lightweight steel guy stub poles would be installed similarly to LWS poles.

3.4.1.7 Counterpoise

|43. Counterpoise

Transmission structures located within the substation boundary would be grounded to the substation ground grid. Foundations for 220/500kV structures located more than 700 feet outside a substation would have adequate grounding.

If adequate foundation to ground resistance criteria cannot be met with ground rods, a counterpoise system would be installed. A counterpoise is an additional ground wire installed below ground adjacent to and attached to the structure to increase conductivity between the structure and the ground so that adequate grounding can be achieved.

3.4.1.8 Guard Structures

|44. Guard Structures

Guard structures are temporary facilities that would typically be installed at transportation, flood control, and utility crossings for wire stringing/removal activities. These structures are designed to stop the movement of a conductor should it momentarily drop below a conventional stringing height. SCE estimates that (TBD) guard structures may need to be constructed along the proposed route.

Typical guard structures are standard wood poles. 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 some cases, the wood poles could be substituted with the use of specifically equipped boom trucks or, at highway crossings, temporary netting could be installed if required. The guard structures would be removed after the conductor is secured into place.

For applicable crossing types requiring guard structures (highway/railroad/open channel water crossings/etc, distribution circuits, DWP transmission, subtransmission and distribution circuits, telecommunications and third-party wires), SCE would work closely with the applicable jurisdiction to secure the necessary permits to string conductor over the applicable infrastructure.

3.4.1.9 Wire Stringing

|45. Wire Stringing

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 by supervision is required to determine circuit outages, pulling times, and safety protocols for ensuring 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, Option 1: Sock Line Threading (Transmission): A helicopter would fly a lightweight sock line from structure to structure, which would be threaded through 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 wire pull.
- Step 2, Option 2: Sock Line, Threading (Subtransmission): 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 2, Option 3: Sock Line, Threading (Subtransmission): In areas where a bucket truck is unable to install a lightweight sock line, a helicopter would fly the 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: Pulling: 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: Splicing, 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.

3.4.1.10 Transmission Wire Pulling and Splicing Locations

|46. Transmission Wire Pulling and Splicing Locations

The puller, tensioner, 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. The number and location of these sites would be determined during final engineering. The approximate area needed for stringing set-ups associated with wire installation is variable and depends upon terrain. See Table 3.2-B 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 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 15,000 to 18,000 feet and wire splices every 7,500 to 9,000 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 diminished. Generally, pulling locations and equipment set-ups would be in direct line with the direction of the overhead conductors and established approximately a distance of three times the height away from 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, are 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.

3.4.1.11 Helicopter Use

|47. Helicopter Use

Helicopters would be used to support construction activities in areas where access is limited (e.g., no suitable access road, limited construction area to facilitate on-site structure assembly, and/or there are environmental constraints to accessing the project area with standard construction vehicles and equipment) or system outage constraints are a factor. Project related helicopter activities could include transportation of construction workers, delivery of equipment and materials to structure sites, structure placement, hardware installation, and conductor {or OPGW} stringing operations. Helicopters may be used in other areas to facilitate construction dependent upon recommendations by the installation contractor.

The operations area of the helicopters would be limited to the Project area including, helicopter staging yards, material yards, ground locations in close proximity to conductor {or OPGW} pulling, tensioning, and splice sites, including locations in previously disturbed areas near construction sites. In addition, helicopters must be able to land within SCE ROWs, which could include landing on access or spur roads. It is also assumed that at night or on off days, for safety and security concerns, helicopters and their associated support vehicles and equipment may be based at a local airport

3.4.1.12 Transfer/Removal of Existing Structures/Facilities

|48. Transfer/Removal of Existing Structures/Facilities

The project would involve removing structures, conductor and associated hardware.

The following is proposed to be removed in the sequence below:

- Road work – 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.
- Wire-pulling locations - Wire pulling sites would be located every [specify distance] along the existing utility corridor, and would include locations at dead-end structures and turning points.
- Conductor removal: The old conductor wire would be transported to a construction yard where it would be prepared for recycling.
- Structure removal: 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 1-2 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 recycling.

|49. Removal of Wood Poles

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.

|50. Topping Off of Existing Pole

The top portion of the existing pole would be removed and existing underbuild is to remain

3.4.1.13 Idle Facilities

|51. Idling of structures

Until final Transmission engineering is completed it is unknown if there will be any idle facilities remaining on SCE's existing ROW or in within public streets/ROW.

3.4.2 Underground Subtransmission Line Installation

|52. Underground Subtransmission Line Installation

The following sections describe the construction activities associated with installing the underground [66/115] kV subtransmission lines for the Proposed Project.

3.4.2.1 Survey

|53. 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.

3.4.2.2 Trenching

|54. Trenching

The Proposed Project includes a total of approximately [TBD] feet of new underground [66] kV subtransmission lines and associated transition and support structures. An approximately 20-24 inch wide by 60-inch deep trench would be required to place the [66] 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 duct bank. Once the duct bank has been installed, the trench would be backfilled with a two-sack sand slurry mix. 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 as well.

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.

3.4.2.3 Duct Bank Installation

|55. Duct Bank Installation

As trenching for the underground [66] 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 6-inch diameter polyvinyl chloride (PVC) conduits fully encased with a minimum of 3 inches of concrete all around. Typical [66] kV subtransmission duct bank installations would accommodate six cables. The Proposed Project would utilize three cable conduits and leave three spare cable conduits for any potential future circuit pursuant to SCE’s current standards for [66] kV underground construction. See Figure 3.2- A for standard duct bank configuration.

The majority of the [66] kV duct banks would be installed in a vertically stacked configuration and each duct bank would be approximately 21 inches in height by 20 inches in width. 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. However, for the Proposed Project it is not anticipated that a flat underground duct bank configuration would be required.

In instances where a subtransmission duct bank would cross or run parallel to other substructures that operate at normal soil temperature (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 (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.

Figure 3.2-A: Typical Subtransmission Duct Bank

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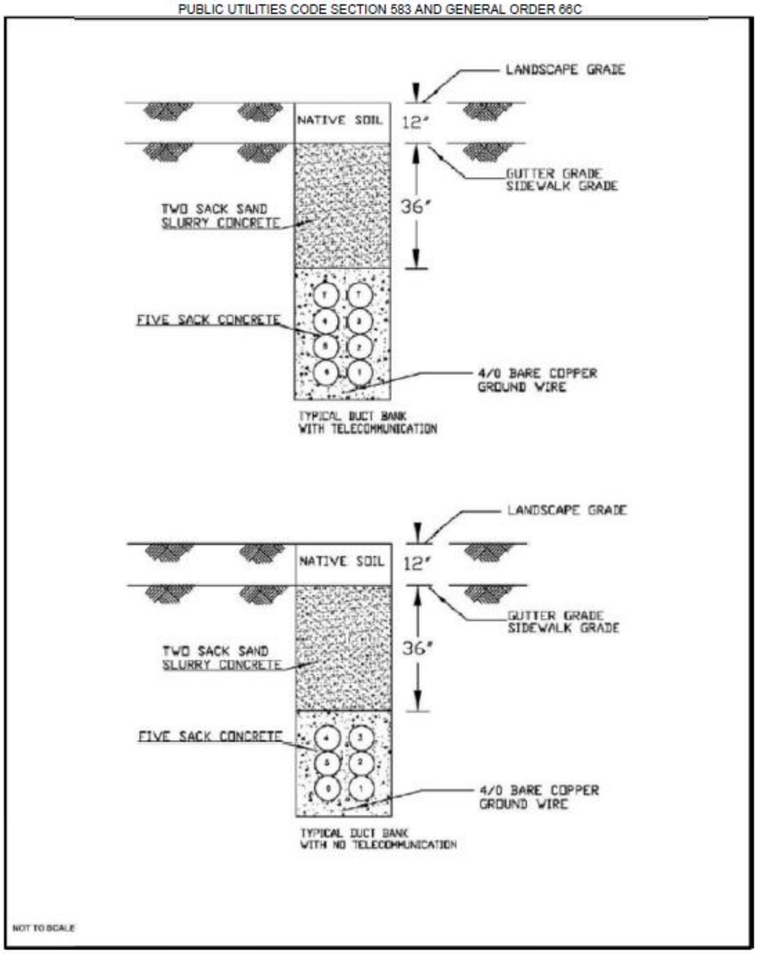

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Figure 3.6: Typical Subtransmission Duct Bank

Fig 3.X

3.4.2.4 Vault Installation

|56. 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 1200 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.

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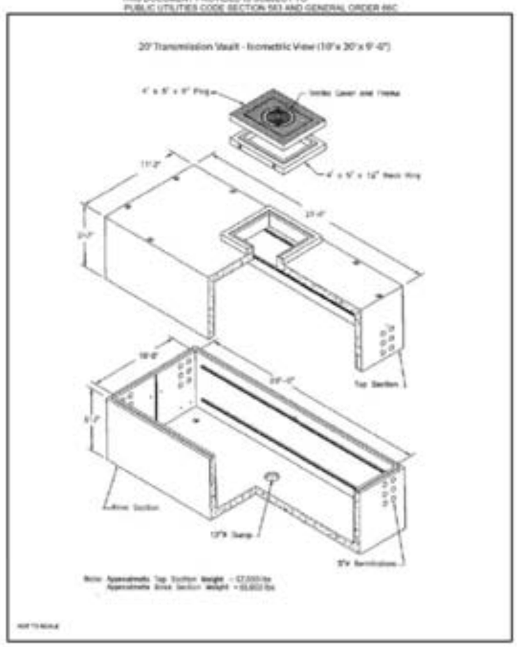

Figure 3.7: Typical Subtransmission Vault

3.4.2.5 Cable Pulling, Splicing, Termination

|57. Cable Pulling, Splicing, Termination

Following vault and duct bank installation, SCE would pull the electrical cables through the duct banks, splice the cable segments at each vault, and terminate 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 [66] kV subtransmission line circuit would 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.

3.4.2.6 Transition Structure Construction

|58. Transition Structure Construction

At each end of an underground segment, the cables would rise out of the ground at transition structures, which accommodate the transition from underground to overhead subtransmission lines. Transition structures constructed as part of the Proposed Project would consist of engineered TSP structures. The transition structure would support cable terminations, lightning arresters, and dead-end hardware for overhead conductors. Construction methods for these structures would be substantially similar to those described in Section 3.2.3.4, Tubular Steel Pole Installation.

3.4.3 Energizing Transmission and Subtransmission Lines

|59. Energizing Transmission and Subtransmission Source Lines

Energizing the new lines is the final step in completing the transmission and subtransmission construction. The existing lines 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.

3.4.4 Other Major Work

|60. Other Major Work

It is unknown at this time as to the amount of other major work that would be required for completion of this project.

Telecommunications Construction

|61. Telecommunications Installation

The following sections describe the construction activities associated with installing the transmission and subtransmission line segments for the Proposed Project.

|62. *Redundant Path for Telecommunications Installation*
A physically diverse Redundant Path for Telecommunications Installation would be required for protection standards and system reliability. The Redundant Path would consist of standard fiber optic cable, microwave radio and /or leased circuits or a combination thereof.

3.4.5.1 Telecommunications equipment installation

|63. Microwave installation

Option 1: Tower installation
All tower, antenna and waveguide material would be delivered by truck and would be staged within a lay down area at the site. The foundation process would start with drilling the holes in the ground using an excavator with the appropriate diameter auger. The spoils produced from drilling would be used on-site or discarded at an off-site disposal facility in accordance with all applicable laws. Following excavation for the foundation, reinforcing steel, and anchor bolts would be installed in the hole and the concrete would then be placed. Once the concrete is sufficiently cured crews would commence erection of the tower. Sections of the tower would be assembled on the ground and lifted into place by means of a crane. If the tower is to be built higher than the crane can reach, then a gin-pole would be used. Once the tower is complete, antenna(s) and waveguide would be installed on the tower using a crane or gin-pole as appropriate.

Option 2: Monopole installation

All monopole, antenna and waveguide material would be delivered by truck and would be staged within a lay down area at the site. The foundation process would start with drilling a hole in the ground using an excavator with the appropriate diameter auger. The spoils produced from drilling would be used on-site or discarded at an off-site disposal facility in accordance with all applicable laws. Following excavation for the foundation, reinforcing steel, and anchor bolts would be installed in the hole and the concrete would then be placed. Once the concrete is sufficiently cured, crews would erect the monopole by means of a crane. Once the monopole is complete, antenna(s) and waveguide would be installed by means of a crane.

3.4.5.2 Fiber optic cable installation

|64. *Overhead telecom facilities installation*
Overhead fiber optic cable would be installed on overhead structures as described in Section 3.4.1.9, Wire Stringing. Pulling and splicing locations would be similar to those described in Section 3.2.4.5, Cable Pulling, Splicing, Termination.

|65. *Underground telecom facilities installation – fiber optic cable*

The fiber optic cable would be installed throughout the length of the underground conduit and structures through an innerduct which provides protection and identification for the cable. First the innerduct would be pulled in the conduit from structure to structure using a pull rope and pulling machine or truck mounted hydraulic capstan. Then the fiber optic cable would be pulled inside the innerduct using the same procedure.

|66. *Underground telecom facilities installation – new conduit*

3.4.5.3 Road Access for Telecommunications Installation

|67. *Road access for telecommunications installation*

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

3.5 Post-Construction Activities

|68. *Post Construction Cleanup*

SCE would cleanup all areas that would be temporarily disturbed by construction of the Proposed Project (which may include the material staging yard, construction setup areas, pull and tension 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.

|69. *Post Construction Restoration – Sensitive habitat*

If restoration occurs within sensitive habitats, a habitat restoration and revegetation plan would be developed by SCE with the appropriate resource agencies and implemented after construction is complete.

3.6 Hazardous Materials

|70. *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.

|Option 1: Phase One Environmental Site Assessment

SCE would complete a Phase I Environmental Site Assessment (ESA) evaluation for the Proposed Project substation site. Phase I ESAs are conducted in accordance with ASTM International (ASTM) Practice E 1527-05 and 40 CFR Part 312 covering AAI. Phase I ESAs include comprehensive and detailed record review, which include site reconnaissance but exclude any intrusive sampling activities.

Project areas would additionally be examined for obvious signs of chemical contamination, such as oil slicks and petroleum odors

|71. Spill Prevention Control and Countermeasure (SPCC)

Option 1: (Applicable if project is expected to have any hazardous liquid materials in excess of 1320 gallons on project site)

- Based on the anticipated volume of hazardous liquid materials, such as mineral oil, in use at the site being in excess of 1,320 gallons, a Spill Prevention and Control Countermeasures (SPCC) Plan would be required (in accordance with 40 C.F.R. Parts112.1-112.7).

3.7 Reusable, Recyclable, and Waste Material Management

|72. Waste Management – Intro

Construction of the Proposed Project would result in the 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 sanitation waste management practices. Material from existing infrastructure that would be removed as part of the Proposed Project such as conductor, steel, concrete, and debris, would be temporarily stored in the staging yard as the material awaits salvage, recycling, or disposal.

|73. Waste Management – Wood Pole disposal

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

|74. Waste Management – Excavated material use

Material excavated for the Proposed Project would either be used as fill, backfill for new towers, poles, vaults, conduits, etc. installed for the project, made available for use by the landowner, 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.

|75. Waste Management – Other

3.8 Environmental Surveys

|76. Environmental Surveys – Intro

SCE would conduct an initial biological and cultural resources evaluation and would conduct further focused environmental surveys after project approval, but prior to the start of construction. These Surveys would identify and/or address any potential sensitive biological and cultural resources that may be impacted by the Proposed Project, including the "substation site", "transmission", "subtransmission", distribution", "telecommunication" line route(s), wire stringing locations, access roads, 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.

The following biological surveys would occur prior to construction:

|77. Environmental Surveys – Sensitive Resource Surveys

|78. Environmental Surveys – Pre-construction surveys

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 nests would be scheduled to take place outside the nesting season when feasible. Within one week prior 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 preconstruction 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.

|79. Environmental Surveys – Cultural resources

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

3.9 Worker Environmental Awareness Training

|80. Worker Environmental Awareness Training - Intro

Prior to construction, a Worker Environmental Awareness Plan (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 applicant proposed measures and project mitigation measures developed after the pre-construction surveys, all construction personnel would also receive the following:

|81. Worker Environmental Awareness Training

- A list of phone numbers of SCE environmental specialist personnel associated with the Proposed Project (archaeologist, biologist, environmental compliance coordinator, and regional spill response coordinator)
- Instruction on the South Coast Air Quality Management District fugitive dust rules
- A review of applicable local, state and federal ordinances, laws and regulations pertaining to historic preservation, a discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and SCE policies, a review of archaeology, history, prehistory and Native American cultures associated with historical resources in the project vicinity inclusive of instruction on what typical cultural 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 archaeologist or environmental compliance coordinator is to be contacted for further direction
- 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 Material 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
- 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

|82. Worker Environmental Awareness Training – Optional bullets for B-sub – Ozone Precursor Control Measures

- Instruction on Ozone Precursor Control Measures

|83. *Worker Env ironmental Awareness T raining – Optional bullets for B-sub – vehicle muffling*

- Direction that site vehicles must be properly muffled

3.10 Construction Equipment and Personnel

|84. *Construction Equipment and Personnel*

The estimated elements, materials, and number of personnel and equipment required for construction of the Proposed Project are summarized for each project component in their respective Construction Equipment and Workforce Estimates Table detailed in above sections.

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 project. Contractor construction personnel would be managed by SCE construction mana gement personnel and ba sed out of the contractor's existing yard or temporary mate rial staging yard set up for the project. SCE anticipates a total of approximately [TBD] construction personnel working on any given day. SCE anticipates that c rews would wor k concurrently wh enever possible; howe ver, the e stimated deployment a nd numb er of c rew members wou ld vary d epending on factors such a s material availability, resource availability, and construction scheduling.

In ge neral, construction e fforts would o ccur in accordance with accepted c onstruction industry standards. To the extent possible, SCE would comply with local ordinances for construction a ctivity. S hould the need a rise to work ou tside the loca l ordinances, SCE would request a variance from the Local permitting jurisdictions. For example, it may be necessary to work during nighttime or outside normal work hours when loads on the lines are reduced.

3.11 Construction Schedule

|85. *Construction Schedule*

SCE anticipates that c onstruction of the Proposed P roject would take a pproximately [TBD] mont hs. Construction would c ommence following C PUC approval, final engineering, procurement activities, and receipt of all applicable permits.

3.12 Project Operation (and Maintenance)

|86. Introduction

Ongoing operation and maintenance 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.

|87. Project Operation Transmission, Subtransmission, and Distribution
|Applicability: All

The transmission, subtransmission, and distribution lines would be maintained in a manner consistent with CPUC General Order 95 and General Order 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 transmission, subtransmission, and distribution overhead facilities in a manner consistent with CPUC General Order 165 a minimum of once per year via ground and/or aerial observation, 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 2-5 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 towers or poles 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 existing tower or 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. Note – this section is similarly required for telecom and distribution if considered part of the project.

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 (General Order-95, Rule 35), 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 transmission tower pads, and as required by local jurisdictions 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 pole and tower structures, or lines or re-stringing conductors. Emergency repairs could be needed at any time. SCE would notify the Lead Agency as soon as feasible of any emergency repairs. The notice would include a description of the work, location of the transmission facilities, and cause of the emergency, if known. The Lead

Agency and SCE would work together to agree upon habitat restoration needs after the emergency.

|88. *Project Operation Telecommunication*

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; helicopter transportation may be required to access remote Communications Sites for routine or emergency maintenance activities. 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.