CHAPTER 3
Project Description

3.1 Introduction

Southern California Edison (SCE), in its California Public Utilities Commission (CPUC) application (A.13-10-021), filed on October 28, 2013 requests a Permit to Construct (PTC) a new 66 kilovolt (kV) subtransmission line and related distribution components in the cities of Moorpark and Thousand Oaks, and in unincorporated Ventura County. SCE's application for a PTC includes the Proponent's Environmental Assessment (PEA), which SCE prepared pursuant to Rule 2.4 of the CPUC's Rules of Practice and Procedure. The following description of the Proposed Project is based on information provided in the PEA (SCE, 2013a) relative to SCE's proposed future activities to complete the Moorpark-Newbury 66 kilovolt (kV) Subtransmission Line Project as well as supplemental information provided by SCE (SCE, 2014). For a description of past construction activities for the Moorpark-Newbury 66 kV Subtransmission line that occurred in 2010 and 2011, refer to Chapter 2, *Background*.

3.2 Project Location

The Proposed Project is located in the cities of Moorpark and Thousand Oaks, and in unincorporated Ventura County (see **Figure 3-1**, *Proposed Project Segments and Existing Substations*). The Proposed Project is located in approximately 9 miles of existing SCE right-of-way (ROW) between SCE's Moorpark Substation and Newbury Substation. As shown in Figure 3-1 and for the purposes of this environmental review, the Proposed Project has been divided into four discrete geographic segments. The Moorpark Substation (part of Segment 1) is located at the intersection of Gabbert Road and Los Angeles Avenue in the City of Moorpark. From the Moorpark Substation, the subtransmission line would traverse varied land uses, including: industrial, light industrial, and agricultural uses in the City of Moorpark (Segments 1 and 2); predominantly agricultural and residential uses in unincorporated Ventura County (Segment 2); Conejo Open Space Conservation Agency (COSCA) lands in the Conejo Canyons (Segment 3); and additional open space to the termination of the subtransmission line at the Newbury Substation in the City of Thousand Oaks, located on Lawrence Drive near Corporate Center Drive (Segment 4).

3.3 Existing System

The Electrical Needs Area (ENA) defined by SCE for the Proposed Project is shown in **Figure 3-2**, *Electrical Needs Area,* and is presently served by two substations within the Moorpark 66 kV Subtransmission System (the Moorpark System): the Newbury Substation and Pharmacy Substation.

The Moorpark System is comprised of the 220/66/16 kV Moorpark Substation, approximately eleven 66/16 kV distribution substations, and various 66 kV customer-dedicated substations and poletop substations. **Figure 3-3**, *Existing and Proposed Moorpark 66 kV Subtransmission System*, provides schematic diagrams of the existing and proposed Moorpark System, not including customer-dedicated substations not associated with the project. The Moorpark System also includes various 66 kV subtransmission lines, and 16 kV, 4 kV and 2.4 kV distribution circuits. The Moorpark System serves customers located in the communities of western Simi Valley, Moorpark, Thousand Oaks, Newbury Park, Westlake Village, Agoura, Agoura Hills, Oak Park, Hidden Hills, Topanga Canyon, Calabasas, Malibu, and portions of eastern unincorporated Ventura County as well as portions of western unincorporated Los Angeles County.

The existing system infrastructure includes portions of the Moorpark-Newbury line that were previously constructed, but not completed or operational. See Chapter 2, *Background*, for details regarding the previously constructed portions of the Moorpark-Newbury line.

3.4 Overview of the Proposed Project

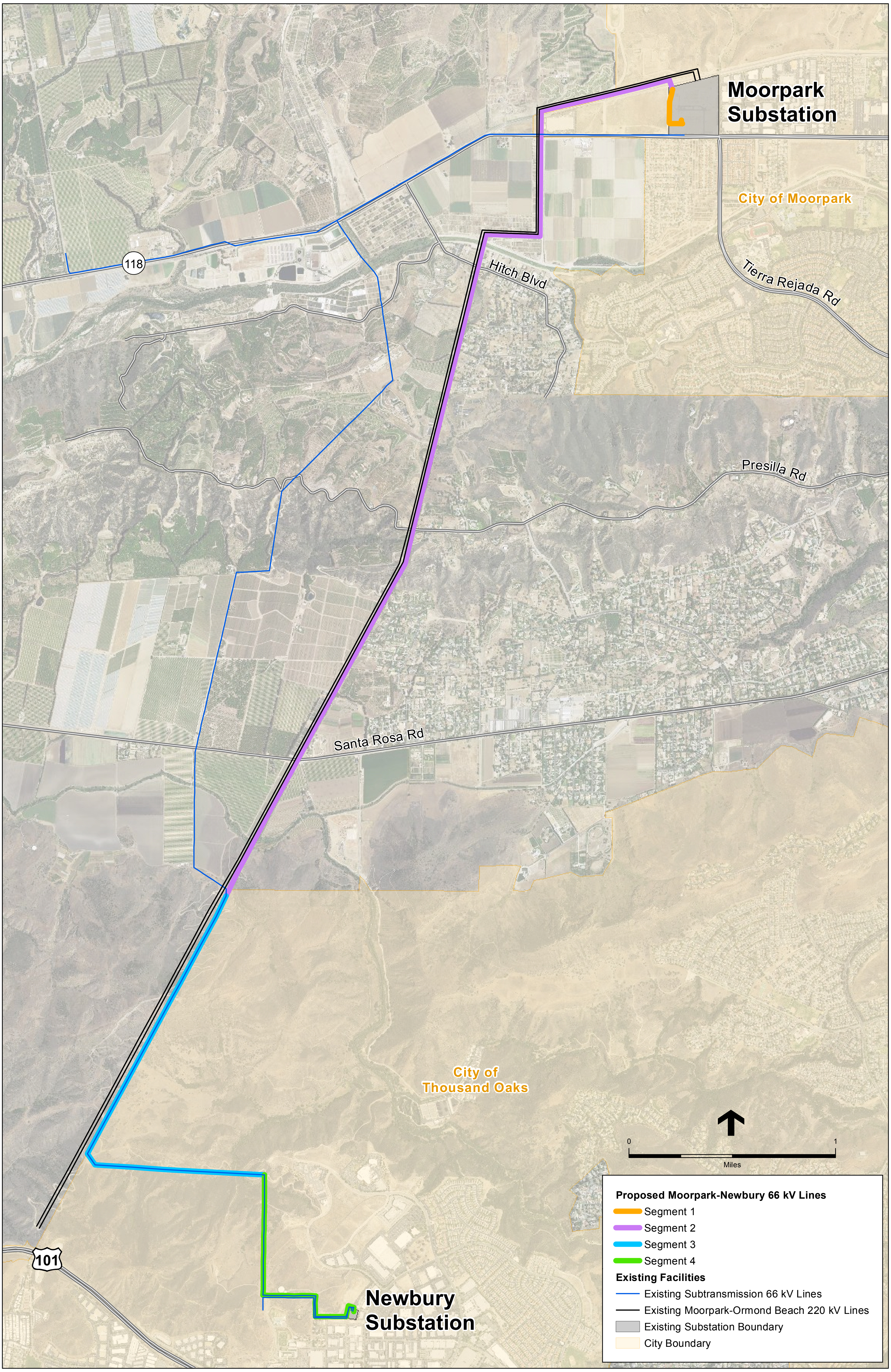
The Proposed Project consists of constructing 66 kV subtransmission line elements within existing SCE ROWs to connect the Moorpark and Newbury substations. Following is an overview of the Proposed Project components:

- **Segment 1:** Installation of approximately 500 feet of new underground 66 kV subtransmission line and a new line position in the 66 kV switchrack entirely within Moorpark Substation.

- **Segment 2:** Installation of two tubular steel pole (TSP) foundations, four TSPs, the upper portion of one TSP, and approximately 5 miles of conductor on new and existing TSPs along the new Moorpark-Newbury 66 kV Subtransmission Line on the south and east sides of SCE’s existing Moorpark-Ormond Beach 220 kV ROW.

- **Segment 3:** Installation of eight TSP foundations, 13 double-circuit TSPs, and approximately 2 miles of conductor on the new Moorpark-Newbury 66 kV Subtransmission Line; reconductoring 2 miles of the Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line. Both of these subtransmission lines would be collocated on the new double-circuit TSPs. Removal of 14 existing lattice steel towers (LSTs) would also occur along this 2-mile segment.

- **Segment 4:** Installation of approximately 1 mile of conductor for the new Moorpark-Newbury 66 kV Subtransmission Line to be collocated with the Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line on previously installed lightweight steel (LWS)



SOURCE: SCE, 2013

Moorpark-Newbury 66 kV Subtransmission Line Project. 207584.15

Figure 3-1

Proposed Project Segments and Existing Substations

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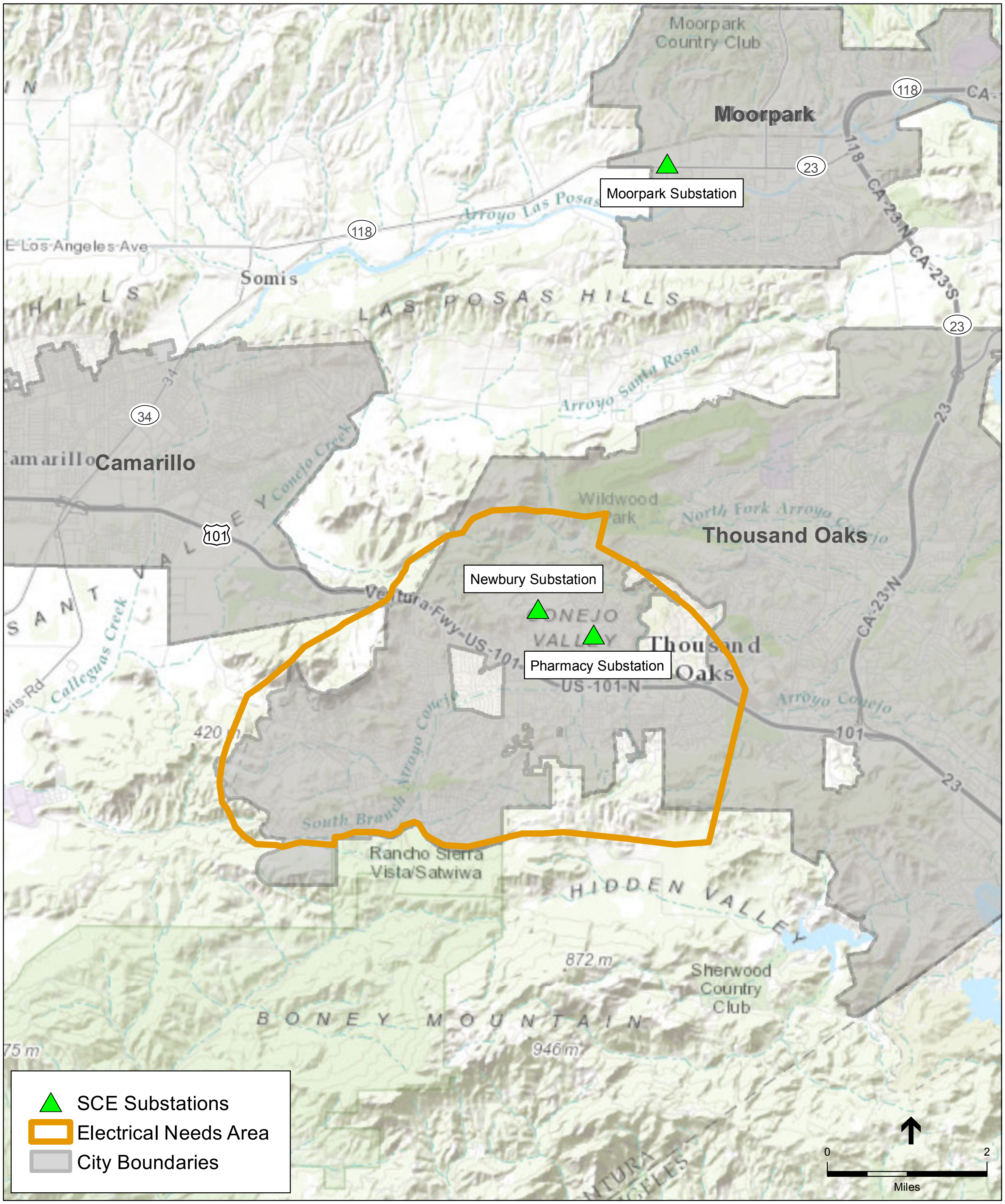
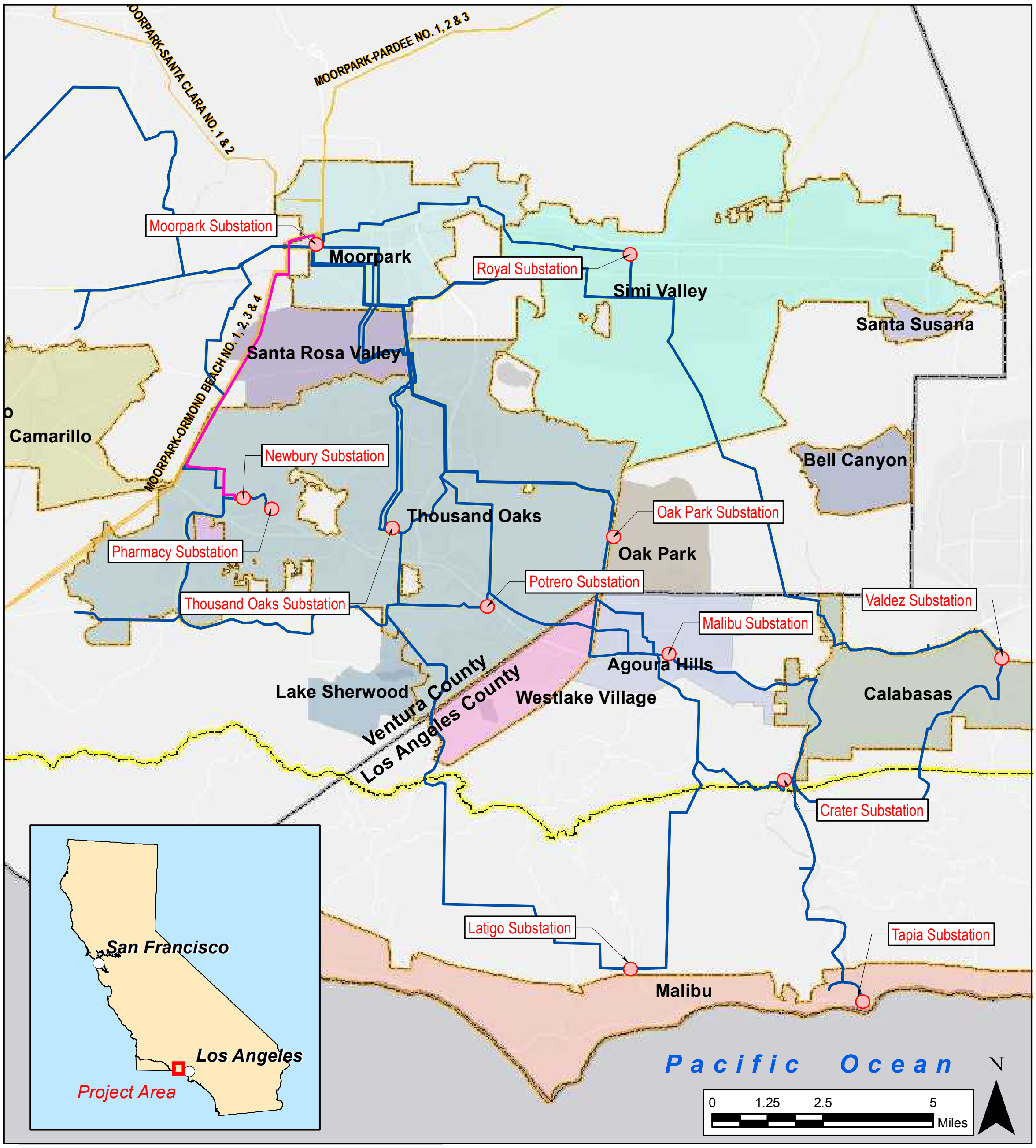


SOURCE: SCE, 2013

Moorpark-Newbury 66 kV Subtransmission Line Project. 207584.15

Figure 3-2

Electrical Needs Area



Substations

Proposed Moorpark-Newbury 66 kV Subtransmission Line

Existing Moorpark Subtransmission System

Coastal Zone Boundary

County Lines

City Boundaries

SOURCE: SCE, 2013

Moorpark-Newbury 66 kV Subtransmission Line Project . 207584.15

Figure 3-3
Existing and Proposed Moorpark 66 kV Subtransmission System

poles into Newbury Substation. In addition, four TSP foundations, four TSPs, two LWS poles, and a new 66 kV subtransmission line position would be installed, and six wood poles would be removed at Newbury Substation. The existing subtransmission, distribution, and telecommunications facilities would be transferred onto the new TSPs and LWS poles.

The four Proposed Project segments illustrated on Figure 3-1 are described in more detail below. **Figure 3-4**, *Proposed Project Area and Index Map*, provides an index for Figures 3-5 through 3-7, which provide detailed illustrations of the Proposed Project components that are associated with Segments 1 through 4.

3.4.1 Segment 1

As illustrated in **Figure 3-5**, *Proposed Activities within Segments 1 and 2,* Segment 1 is located entirely within the fenceline of the Moorpark Substation. Segment 1 begins at the 66 kV switchrack and extends west to a location near the substation fenceline, where it turns north and continues to a riser TSP near the northwest corner of the substation. Activities proposed within Segment 1 include:

- Construction of approximately 500 feet of duct bank consisting of six 5-inch conduits;
- Installation and splicing of 1,200 feet of subtransmission cable; and
- Termination of the new subtransmission cable at a line position in the 66 kV switchrack.

3.4.2 Segment 2

Segment 2 begins at the fence line of the Moorpark Substation and terminates at pole location 28 near the City of Thousand Oaks boundary (see **Figure 3-5**, *Proposed Activities within Segments 1 and 2,* and **Figure 3-6**, *Proposed Activities within Segments 2 and 3*). Project Segment 2 is located entirely within SCE's existing Moorpark-Ormond Beach 220 kV ROW. From the northwest corner of the Moorpark Substation, the proposed 66 kV subtransmission line would exit the substation, proceed southwest for approximately 3,400 feet, then would assume a southerly alignment near Montair Drive, cross State Route (SR) 118 (Los Angeles Avenue), and continue south and west across open space and lands used for agricultural purposes. The 5-mile long new overhead 66 kV subtransmission line in this segment would be installed on TSPs.

Activities proposed within Segment 2 include:

- Construction of two TSP foundations (pole locations 26 and 27);
- Installation of the upper segment of one partially-installed TSP to complete construction at pole location 23;
- Construction of four TSPs (pole locations 24 through 27);
- Installation of approximately 5 circuit miles of 954 aluminum conductor steel-reinforced (ACSR) throughout Segment 2 (between poles 1 and 28); and
- Installation of marker balls on the conductor between poles 25 and 26, and between poles 27 and 28, or as otherwise recommended by the Federal Aviation Administration (FAA).

3.4.3 Segment 3

Segment 3 extends approximately 3 linear miles from the southern end of Segment 2 (north of the boundary of the City of Thousand Oaks), and then south and east to the northern terminus of Segment 4, approximately 0.3 mile west of the intersection of Conejo Center Drive and Rancho Conejo Boulevard (see **Figure 3-6** and **Figure 3-7**, *Proposed Activities within Segments 3 and 4*). With the exception of approximately 400 feet at its northern end, all of Project Segment 3 is located in open space lands managed by COSCA. Project Segment 3 would consist of installing overhead 66 kV subtransmission lines on double-circuited TSPs that would carry both the Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line and the Moorpark-Newbury 66 kV Subtransmission Line.

Activities proposed within Segment 3 include:

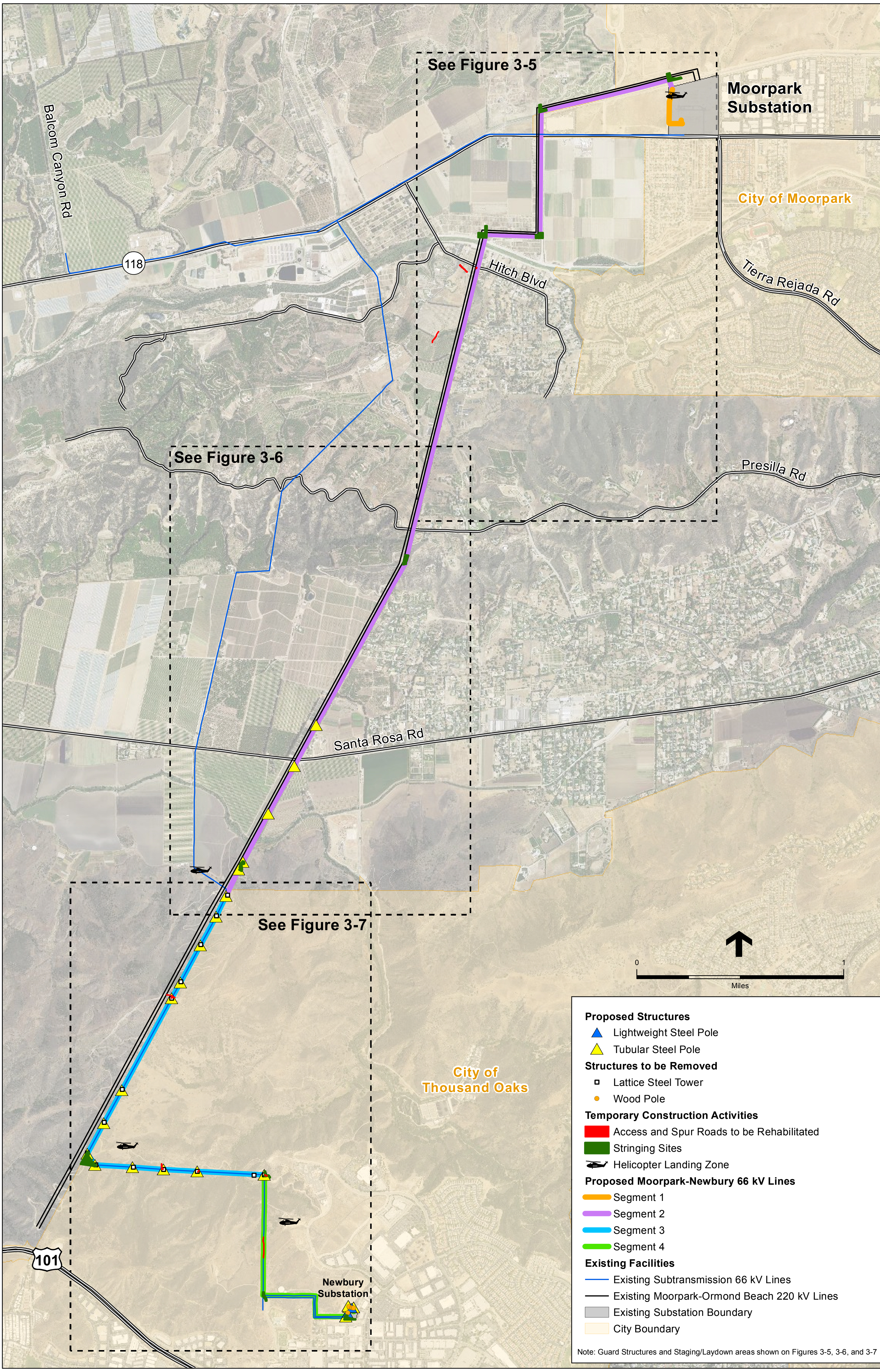
- Installation of eight TSP foundations (five new foundations at pole locations 28, 32, and 38 through 40; and completion of three foundations that have been slurried at pole locations 29 through 31);
- Installation of 13 TSPs (pole locations 28 through 40);
- Removal of 14 existing LSTs and 3 miles of 653 ACSR associated with the existing Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line;
- Installation of approximately 2 miles of double-circuit 954 ACSR on new TSPs. One circuit would be for the new Moorpark-Newbury 66 kV Subtransmission Line and the other circuit would replace the existing Moorpark-Newbury-Pharmacy 66 kV Subtransmission line that would be removed (see prior bullet); and
- Installation of marker balls on the conductor between poles 32 and 33, and poles 39 and 40, or as otherwise recommended by FAA.

3.4.4 Segment 4

Segment 4 extends from the southern terminus of Segment 3 to the Newbury Substation (see Figure 3-7). When fully constructed, Project Segment 4 would consist of approximately 1 linear mile of overhead 66 kV subtransmission lines installed on TSPs and LWS poles. The TSPs and LWS poles would primarily be double-circuited.

Proposed activities within Segment 4 include:

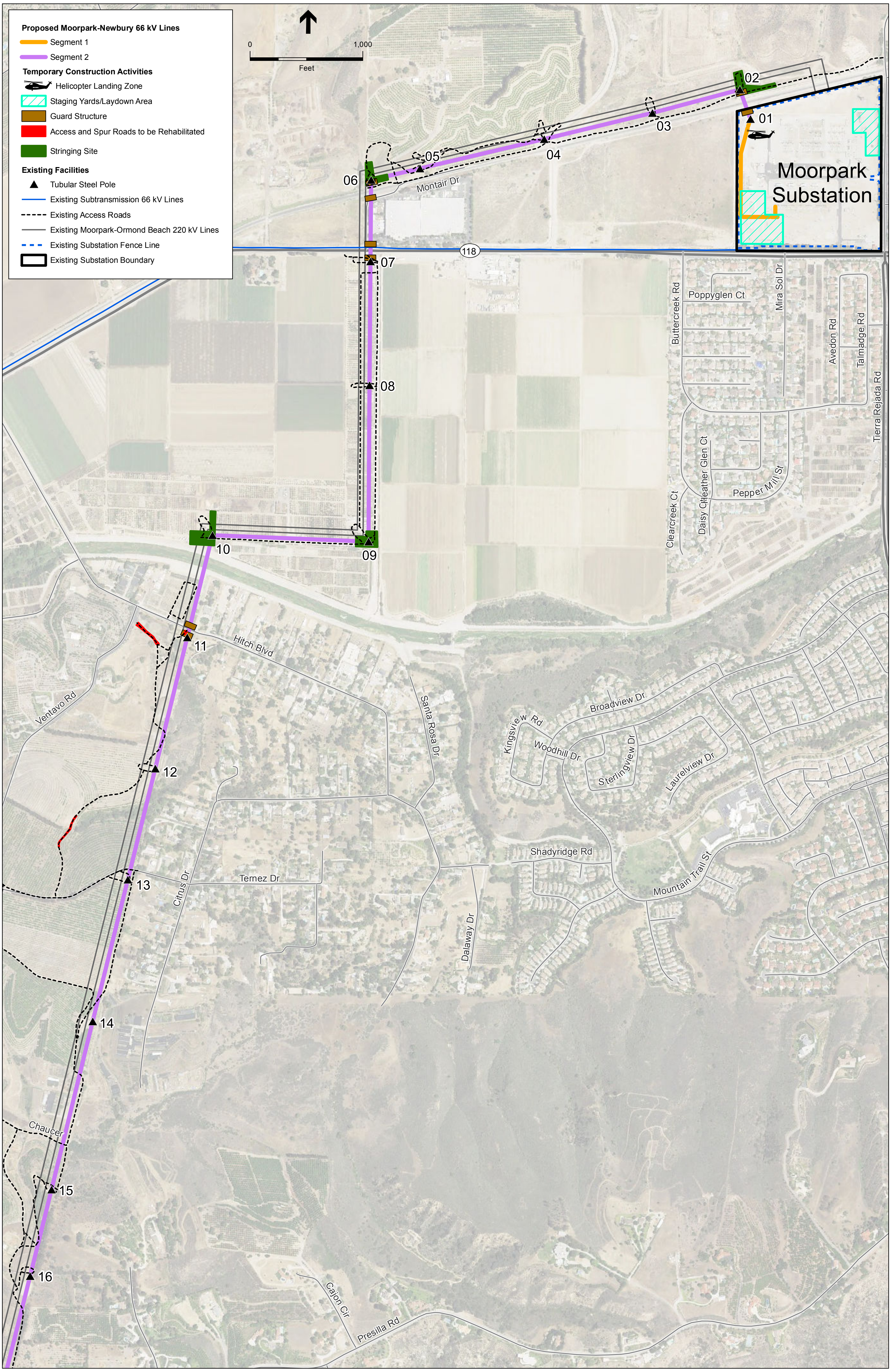
- Installation of approximately 0.5 mile of 954 stranded aluminum conductor (SAC) for the new Moorpark-Newbury 66 kV Subtransmission Line;
- Installation of approximately 0.5 mile of fault return conductor (FRC);
- Installation of four TSP foundations at Newbury Substation;
- Installation of four TSPs (pole locations 68, 70, 71, and 73) and two LWS poles (pole locations 69 and 72) at the Newbury Substation;
- Removal of six wood subtransmission poles at Newbury Substation;



SOURCE: SCE, 2013/2014

Moorpark-Newbury 66 kV Subtransmission Line Project. 207584.15

Figure 3-4
Proposed Project Area and Index Map

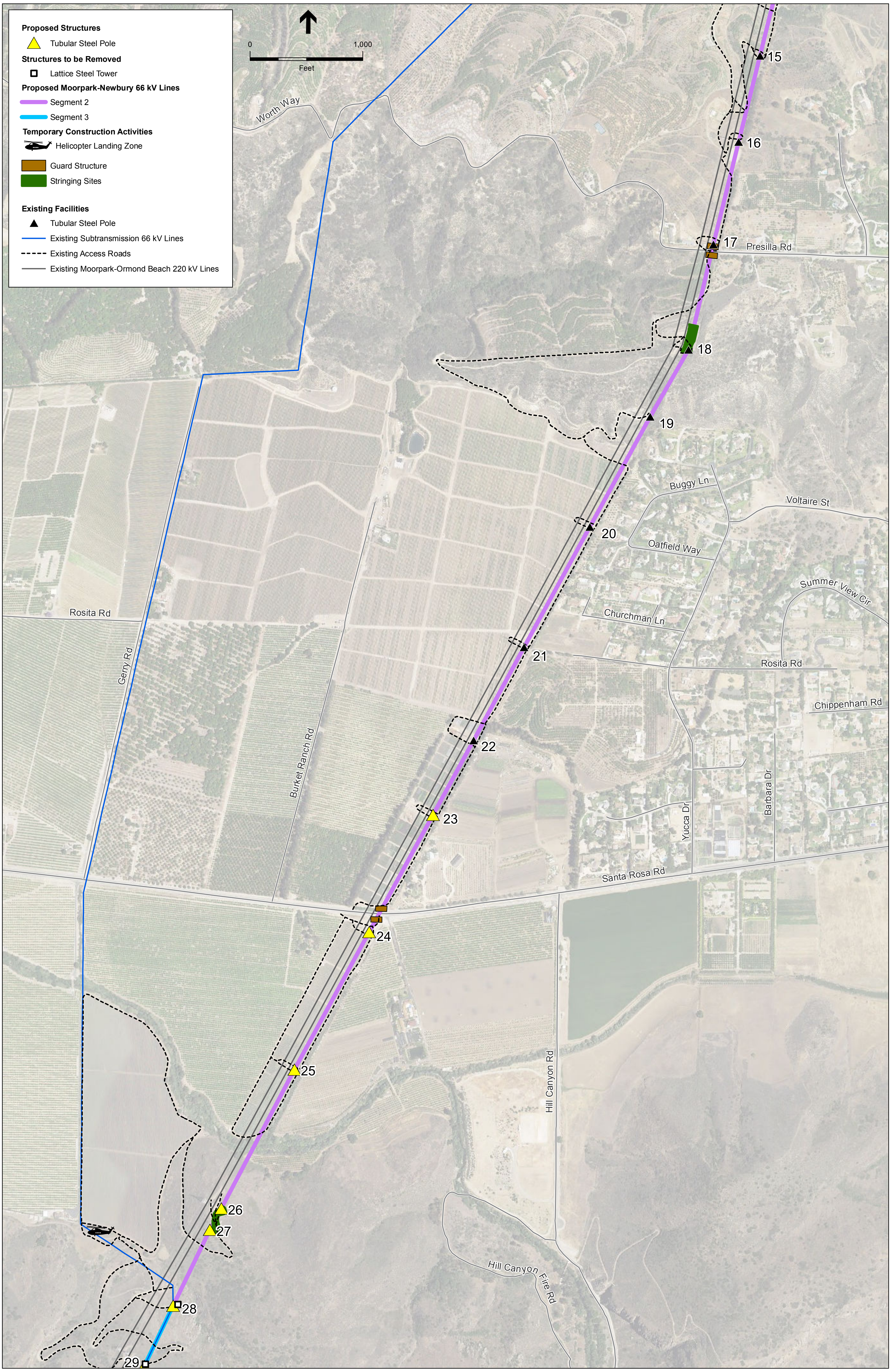


SOURCE: SCE, 2013/2014

Moorpark-Newbury 66 kV Subtransmission Line Project. 207584.15

Figure 3-5

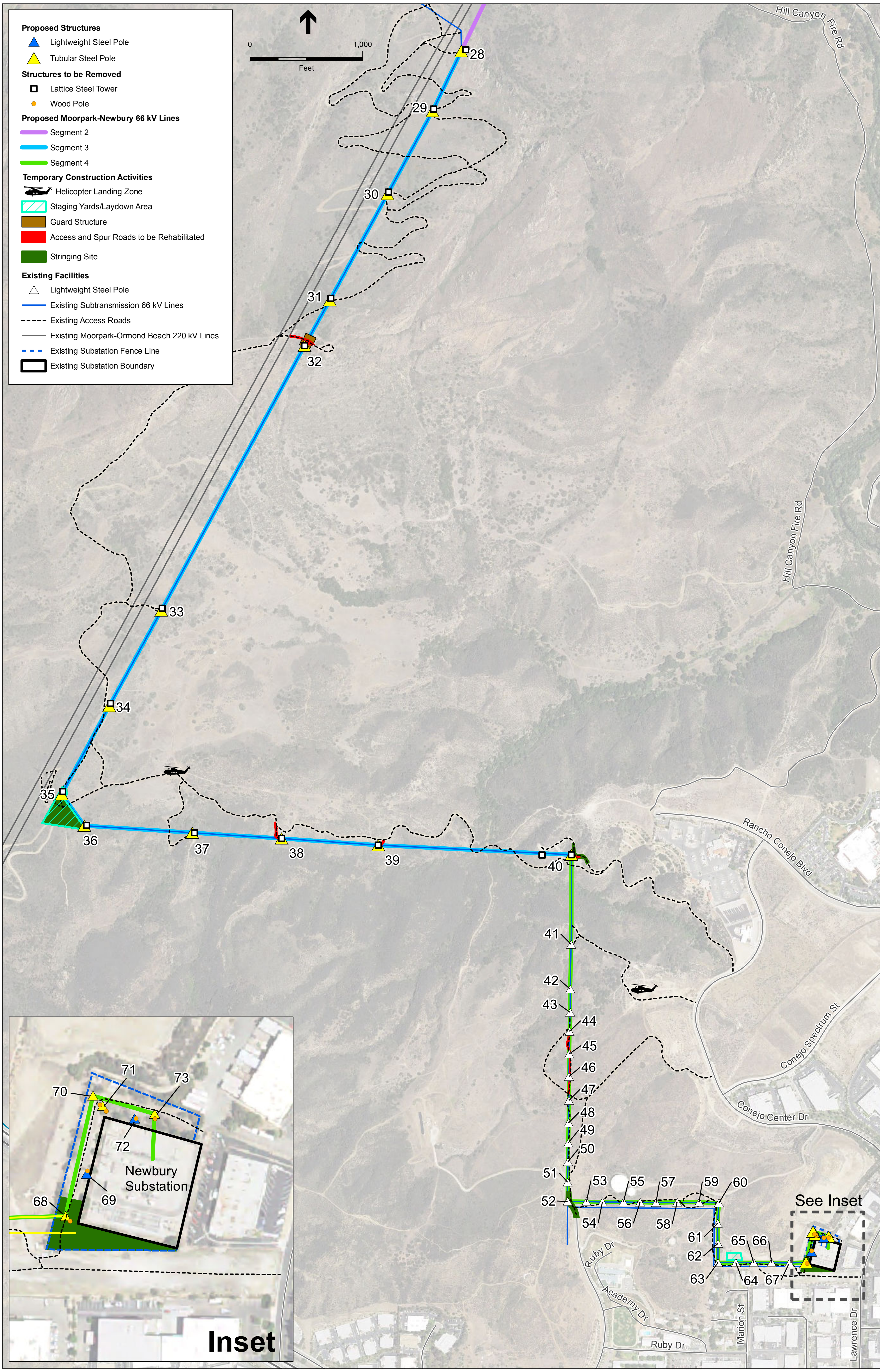
Proposed Activities within Segments 1 and 2



SOURCE: SCE, 2013/2014

Moorpark-Newbury 66 kV Subtransmission Line Project. 207584.15

Figure 3-6
Proposed Activities within Segments 2 and 3

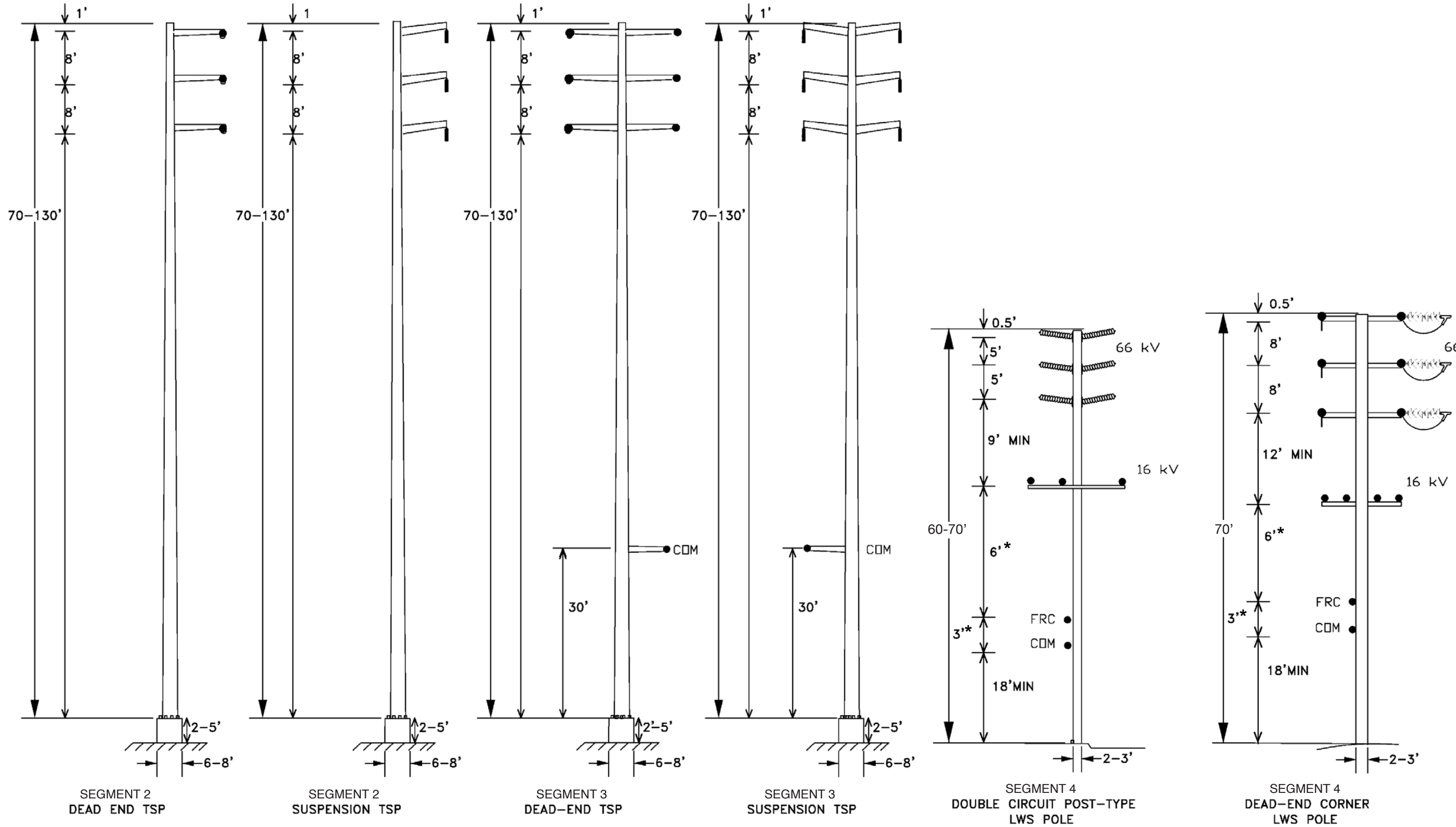


SOURCE: SCE, 2013/2014

Moorpark-Newbury 66 kV Subtransmission Line Project. 207584.15

Figure 3-7

Proposed Activities within Segments 3 and 4



SOURCE: SCE, 2014

Moorpark-Newbury 66 kV Subtransmission Line Project . 207584.15

Figure 3-8
Typical Pole Design

- Transfer existing subtransmission, distribution and telecommunications facilities to new structures; and
- Installation of marker balls on conductor between poles 40 and 41, or as otherwise recommended by FAA.

3.5 Proposed Project Components

The main Proposed Project components include construction of (1) the 66 kV subtransmission lines, (2) 66 kV subtransmission poles, (3) conductor, and (4) upgrades at the Moorpark and Newbury substations. These components would be completed in one phase and are described in more detail below.

3.5.1 Subtransmission Lines

The Newbury Substation is currently served by the Moorpark Substation by the single-circuit Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line and the Newbury-Thousand Oaks 66 kV Subtransmission Line. A new 9-mile long 66 kV Moorpark-Newbury 66 kV Subtransmission Line would be constructed throughout all four Proposed Project segments, connecting the Moorpark Substation to the Newbury Substation (see Figure 3-1). As summarized in Segment 3.4, above, the Proposed Project would consists of installing new TSPs, replacing LSTs with new TSPs, and replacing existing wood poles at Newbury Substation with new TSPs and LWS poles. The new subtransmission line would be placed on all new TSP and LWS poles throughout all four Proposed Project segments.

3.5.1.1 Subtransmission Poles

The Proposed Project would require the installation of approximately 24 new subtransmission poles, consisting of 22 TSPs, one of which is partially installed, and two LWS poles. These structures would support approximately 9 miles of 954 ACSR, including a 3-mile double-circuit ACSR, and a 0.5-mile segment of 954 SAC.

All poles would be designed to be consistent with the Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006 (APLIC, 2006). **Figures 3-4** through **3-7** show the locations of all new poles. **Figure 3-8**, *Typical Pole Design*, depicts typical subtransmission pole configurations of TSPs and LWS poles. **Table 3-1**, *Typical Subtransmission Pole Dimensions*, summarizes the approximate subtransmission structure dimensions.

TABLE 3-1
TYPICAL SUBTRANSMISSION POLE DIMENSIONS

Pole Type	No. of Poles to be Installed	Aboveground Height	Pole Diameter	Auger Hole Depth	Auger Diameter
TSPs	22*	70 to 135 Feet	3 to 6 Feet	17 to 46 Feet	6 to 8 Feet
LWS Poles	2	60 to 70 Feet	2 to 3 Feet	9 to 12 Feet	2 to 3 Feet

* 21 entire TSPs would be installed. One TSP in Segment 2 is partially installed; only the top section would be installed under the Proposed Project.

Tubular Steel Poles

SCE would install 22 TSPs, each of which would have a dulled galvanized finish. TSPs would range from 70 to 135 feet above ground surface (AGS) with an approximate diameter of 3 to 6 feet. TSPs would be installed on a concrete base foundation 6 to 8 feet in diameter that may extend 2 to 5 feet AGS, and approximately 17 to 46 feet below ground. Accordingly, TSP foundations would require approximately 20 to 95 cubic yards of concrete depending upon the diameter and depth of the foundation. Eight of the 22 TSPs would be installed on existing foundations (at pole locations 23, 24, 25, and 33 through 37), three of the TSPs would be installed where holes for foundations have been excavated, but were filled with slurry when construction on the of the project was halted in 2011 (pole locations 29 through 31), and 11 of the TSPs would be installed at sites where foundation work has yet to be started.

Each TSP that would be installed to replace an LST would be installed within approximately 10 to 25 feet of the existing LST it replaces, and in the current alignment of the existing 66 kV subtransmission line.

Lightweight Steel Poles

The Proposed Project would include installation of two LWS poles at Newbury Substation that would be tapered with a dulled galvanized finish. LWS poles would extend approximately 60 to 70 feet AGS, with a base diameter of 2 to 3 feet at the ground level, tapered to the top of the pole. Each LWS pole would be installed within approximately 6 feet of the existing wood pole it replaces and in the current alignment of the subtransmission line. The LWS poles would be direct-buried to a depth of approximately 9 to 12 feet below ground and would require excavation of holes approximately 24 to 36 inches in diameter. Approximately 1.75 cubic yards of soil would be excavated per LWS pole, totaling 3.5 cubic yards of soil altogether.

Although the LWS poles would be earth-grounded structures, an FRC, consisting of bare 4/0 ACSR, would be installed along a portion of Segment 4 to electrically ground the LWS poles. This conductor would be located approximately 1 to 3 feet above the telecommunications facilities and 4 to 6 feet below the distribution facilities.

Guys are anchored wires typically used when poles are located on angles or corners to provide support to the pole. Guying consists of a guy wire (down guy) that is fastened to the pole and attached to a buried anchor, or when there is not adequate space for the required down guy, a shorter guy pole (stub pole) is typically placed with a down guy and buried anchor in a location that has sufficient room for these facilities. SCE does not anticipate needing to install guy wires on the two LWS poles to be installed within Newbury Substation. However, if field conditions require that either pole location needs to be shifted due to an unforeseen issue (such as an unknown underground utility), down guys and/or guy stubs could be required. Any guying required would be located entirely within SCE’s Newbury Substation property and no guying across a roadway would be required.

3.5.1.2 Conductor

Above-Ground Conductor

The configuration of conductor on TSPs and LWS poles would vary by segment. In Segments 1 and 2, TSPs would be single-circuited with 954 ACSR. In Segment 3, TSPs would be double-circuited with new 954 ACSR for both the new Moorpark-Newbury 66 kV Subtransmission Line and the reconductored Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line. In Segment 4, TSPs and LWS poles would be double-circuited with existing, transferred 653 ACSR (for the Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line) and new 954 SAC (for the new Moorpark-Newbury 66 kV Subtransmission Line). Certain structures in Segment 4 would also support a 16 kV distribution circuit and fault return conductor.

In Segment 2, three conductors would be installed on each TSP. In Project Segment 3, six conductors would be installed on each TSP. In Segment 4 (outside of the Newbury Substation), three subtransmission conductors would be installed on all LWS poles, and FRC would be installed on LWS poles as necessary. In Segment 4 (inside of the Newbury Substation), three subtransmission conductors and FRC would be installed on the LWS and TSP poles (see Figure 3-8 *Typical Pole Design*, for typical configurations of conductor and insulators).

Subtransmission conductor installed on LWS poles would be at least 50 feet AGS as measured at the pole, and conductor installed on TSPs would rise at least 53 feet AGS as measured at the pole. The vertical distance between the conductors installed on LWS poles would be approximately 5 to 8 feet, and approximately 8 feet on TSPs. The horizontal distance between the conductors installed on LWS poles would be approximately 11 feet, and approximately 18 feet on TSPs. The distance between the ground and the lowest conductor would exceed applicable minimum height requirements where the conductor spans roadways, railroads, and flood control structures. Conductor span lengths would vary depending upon topography, engineering, and site considerations. Spans between LWS poles would range from 145 feet to 433 feet; spans between TSPs would range from approximately 205 feet to 2,685 feet.

All conductor installed as part of the Proposed Project would be non-specular.[1] The 954 ACSR would be 1.165 inches in diameter, and the 954 SAC would be 1.124 inches in diameter. The FRC would consist of bare 4/0 ACSR with a diameter of 0.563 inches that would not be non-specular. Overhead structures would also support polymer insulators.

The alignment of some of the Proposed Project infrastructure and terrain in the region requires FAA notification due to the height above ground of the conductor at certain locations. Marker ball spacing would be in accordance with FAA Advisory Circular AC 70/7460-1K, and markers would be spaced equally along the wire at intervals of approximately 200 feet or a fraction thereof (SCE, 2014). The specific number of marker balls required for each identified span would be based on FAA's determination for the Proposed Project. If a span requires three or fewer marker balls, then the marker balls on the span would all be aviation orange. If a span requires more than three marker balls, then the marker balls would alternate between aviation orange,

1 The term non-specular refers to the diffuse reflection of sound or light waves.

white, and yellow. Marker balls would be 36 inches in diameter. Refer to **Figure 3-9**, *Marker Ball Dimensions*, for an illustration of the type of marker balls that would be installed. Per FAA guidance, marker balls would be displayed on the highest wire or by another means at the same height as the highest wire (SCE, 2014).

Below-Ground Conductor

Underground 66 kV subtransmission facilities would be installed at Moorpark Substation to route subtransmission cable from the TSP riser pole (pole location 1) to the 66 kV switchrack. Approximately 500 feet of duct bank would be constructed as part of the Proposed Project, which would link to an approximately 700-foot-long segment of existing duct bank connecting the TSP riser pole to the 66 kV switchrack.

Three separate 3,000 kcmil copper underground cables approximately 1,200 feet in length each would be installed through the TSP and conduit within the duct bank. The duct bank would be comprised of conduit, spacers, ground wire, and concrete encasement. The duct bank would consist of six 5-inch diameter polyvinyl chloride (PVC) conduits fully encased with a minimum of 3 inches of concrete all around. The duct bank would be installed in an approximately 5-foot deep trench to ensure the minimum 3 feet of cover above the duct bank. The 66 kV duct bank would be installed in a vertically stacked configuration and the duct bank would be approximately 21 inches in height by 20 inches in width. For an illustration of the proposed duct bank, refer to **Figure 3-10**, *Typical Subtransmission Duct Bank*.

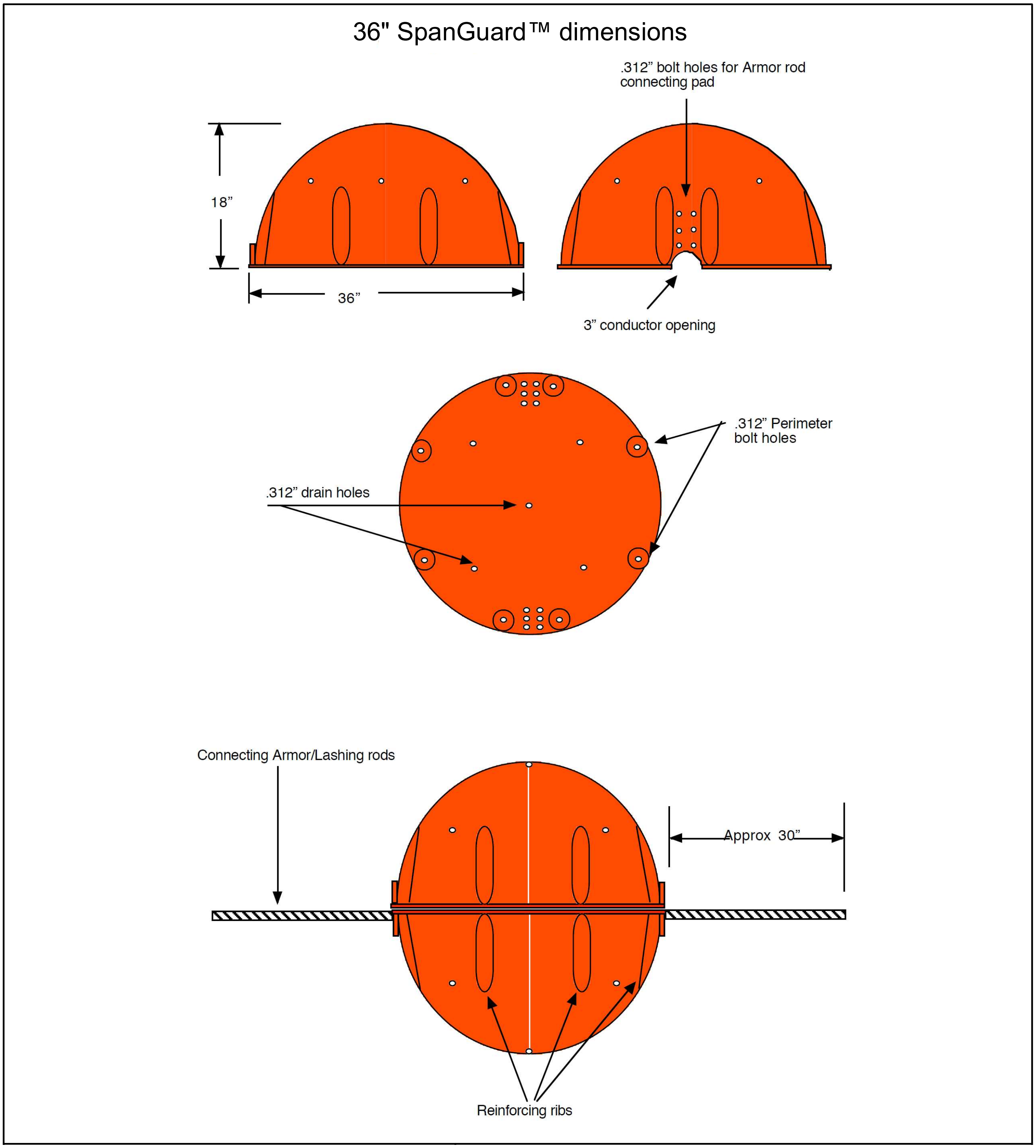
The 66 kV subtransmission duct bank would accommodate six cables; the Project would utilize three cable conduits and leave three spare cable conduits for any potential future circuit pursuant to SCE’s current standards for 66 kV underground construction.

3.5.2 Substations

All proposed activities at the Moorpark and Newbury substations would be conducted within the existing substation fencelines. SCE considers the California Building Code and the Institute of Electrical and Electronics Engineers (IEEE) 693, Recommended Practices for Seismic Design of substations when designing substation structures and equipment. Proposed improvements to the existing substations are described below.

3.5.2.1 Moorpark Substation

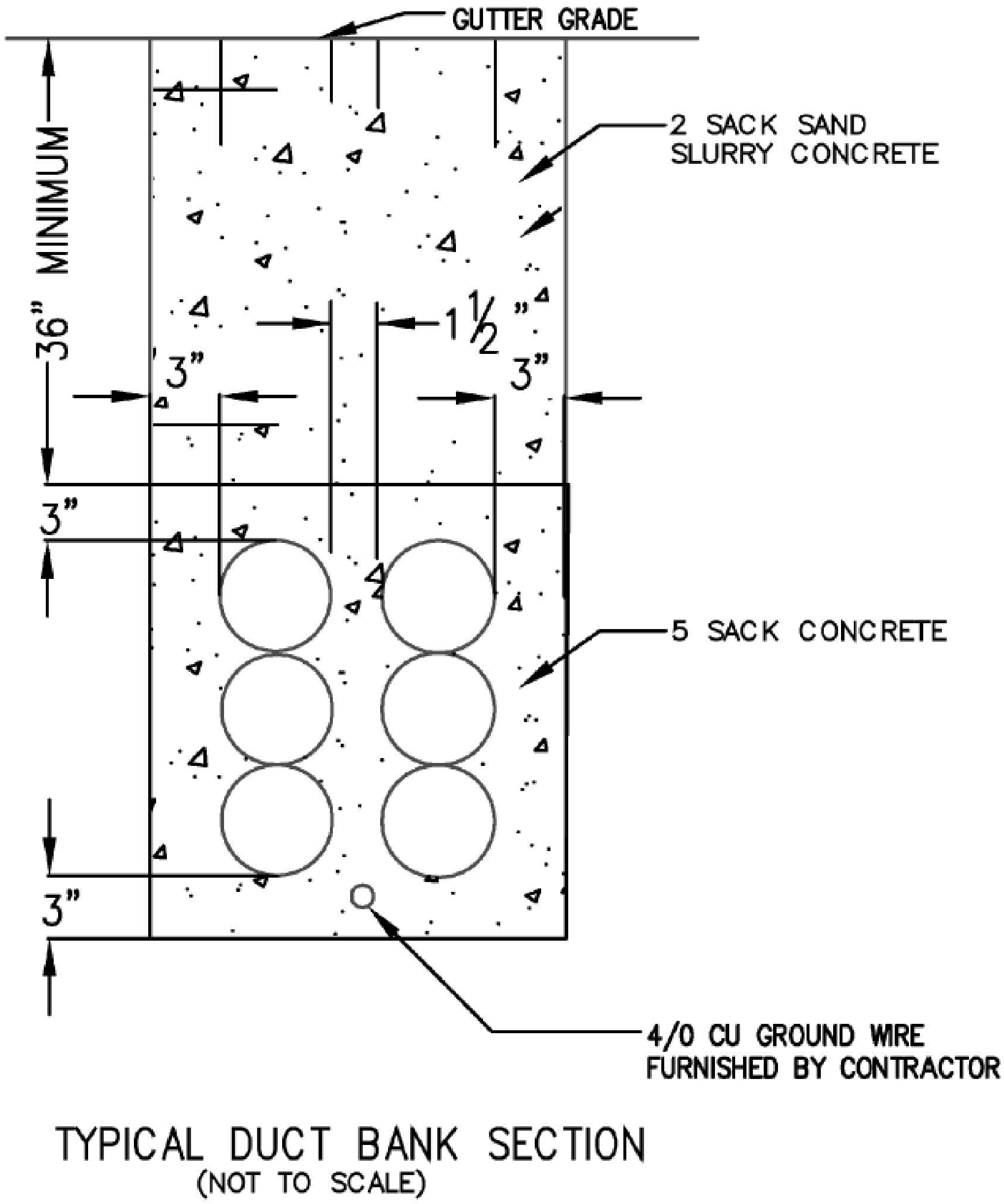
Construction work proposed at Moorpark Substation (located at the intersection of Gabbert Road and Los Angeles Avenue in Moorpark) would include completion of the proposed duct bank, stringing the conductor from the TSP riser pole through the duct bank conduit, and terminating the new Moorpark-Newbury 66 kV Subtransmission Line to the new line position in the existing 66 kV switchrack.



SOURCE: SCE, 2013

Moorpark-Newbury 66 kV Subtransmission Line Project . 207584.15

Figure 3-9
Marker Ball Dimensions



SOURCE: SCE, 2013

Moorpark-Newbury 66 kV Subtransmission Line Project . 207584.15

Figure 3-10
Typical Subtransmission Duct Bank

3.5.2.2 Newbury Substation

Construction activities proposed at Newbury Substation (located on Lawrence Drive between Lavery Court and Corporate Center Drive in the City of Thousand Oaks) include replacing six wood poles with TSPs or LWS poles, reconductoring the poles and transfer bus, and terminating the new Moorpark-Newbury 66 kV Subtransmission Line at the switch rack.

3.5.2.3 Substation Access

Access to the existing Moorpark Substation would not be modified as part of the Proposed Project and would occur via SR 118 (Los Angeles Avenue) and Gabbert Road. Access to the existing Newbury Substation would be modified; the existing gate located on the eastern side of the southeast corner of the substation would be realigned slightly northward to facilitate vehicle movements.

3.5.3 Rights-of-Way Requirements

The Proposed Project would be built entirely within existing ROWs, easements, public ROWs, and on existing SCE “fee-owned” property (i.e., property which is currently legally owned by SCE) (SCE, 2014). In addition, appropriate permits, licenses, and/or property rights would be obtained for flood control, railway, and roadway crossings. If temporary construction access is needed, SCE would work with property owners to secure appropriate rights or permission.

3.6 Construction

The following subsections describe the construction areas and activities that would be associated with the Proposed Project.

3.6.1 Access Roads

Throughout the construction and operation phases of the Proposed Project, access to the 66 kV subtransmission lines would be achieved through the use of approximately 21 miles of existing dirt access roads and existing spur roads that are accessible from paved public and private roads. Access roads are through roads that extend between Proposed Project structure sites along the ROW and serve as the main access route to those sites. Spur roads branch from access roads and terminate at one or more structure sites. Existing access roads and spur roads that would be used during construction of the Proposed Project are shown in Figures 3-5 through 3-7. It should be noted that Figures 3-5 through 3-7 identify the access roads and spur roads as simply access roads for simplicity. Prior to construction, some segments of the existing access and spur roads would require minor rehabilitation, such as light grading and vegetation removal, to facilitate the safe movement of construction vehicles and personnel. Any road or work site location where erosion across the road surface, deterioration of berms and/or swales, water bars, and weed/brush clearing has occurred would be remedied prior to the start of construction. Given the access and spur road conditions as of September 2014, this work would occur along several short road segments for a total area of approximately 0.5 acre (SCE, 2014). Limited areas of access road would require widening at curves or heavier grading.

3.6.2 Staging Areas

Two portions of Moorpark Substation would be used as staging areas for crew assembly and materials staging. The staging areas would be used as a reporting location for workers and as a parking area for vehicles and equipment. The Moorpark Substation is fenced and lit for staging and security. Electricity for the lighting of the staging areas at Moorpark Substation would be obtained from the SCE electrical grid. The two staging areas are both 'L' shaped and have maximum dimensions of approximately 155 yards by 125 yards (Moorpark Substation #1) and approximately 100 yards by 80 yards (Moorpark Substation #2); these areas cover approximately 3.3 acres and 1.7 acres, respectively. The Moorpark Substation staging areas would require no site preparation, as the staging areas are located on rock- or gravel-covered areas and other previously-disturbed areas within the substation. Refer to **Table 3-2**, *Staging Area, Construction Laydown Area, and Helicopter Landing Zone Locations*, and Figure 3-5 for a description and illustration of the proposed staging area locations, respectively.

TABLE 3-2
STAGING AREA, CONSTRUCTION LAYDOWN AREA, AND HELICOPTER LANDING ZONE LOCATIONS

Name	Location	Pre-Project Condition	Approximate Area	Project Component
Moorpark Substation #1	NW corner of Gabbert Rd and Los Angeles Ave. (NE portion of substation property)	Previously Disturbed	3.3 acres	Staging Area
Moorpark Substation #2	NW corner of Gabbert Rd and Los Angeles Ave. (SW portion of substation property)	Previously Disturbed	1.7 acres	Staging Area
Moorpark Substation Landing Zone	NW corner of Gabbert Rd and Los Angeles Ave. (NW portion of substation property)	Previously Disturbed	0.28 acres	Helicopter Landing Zone (LZ)
Fitzgerald Ranch	W of pole location 28	Previously Disturbed	0.1 acre	Helicopter LZ
COSCA #1	COSCA-owned Lands in Segment 3 at pole locations 35 and 36	Previously Disturbed	1.5 acres	Construction Laydown Area
COSCA #2	COSCA-owned Lands near Segment 3 N of pole location 37	Previously Disturbed	0.1 acre	Helicopter LZ
Shapell Industries	Privately-owned Land East of Segment 4 at pole Location 41	Previously Disturbed	0.1 acre	Helicopter LZ
Newbury Substation	N of pole location 64	Previously Disturbed	0.2 acre	Construction Laydown Area

Materials stored at the staging areas may include the following: construction trailers; construction equipment; steel poles; wire reels; hardware; insulators; cross arms; signage; consumables (such as filler compound); BMP materials (i.e., straw wattles, gravel, and silt fences); portable sanitation facilities; and waste materials for salvaging, recycling, or disposal. The majority of materials associated with the construction efforts would be delivered by truck to the Moorpark Substation staging area, while some materials may be delivered directly to temporary construction laydown areas. Contractor construction personnel would be managed by SCE construction management personnel and based out of the Contractor's existing yard or the Moorpark Substation staging areas. It should be noted that some of the Proposed Project materials (e.g., pole pieces) are already located at the Moorpark Substation #2 staging area.

3.6.3 Construction Laydown Areas

Construction laydown areas would serve as temporary areas where Proposed Project-related equipment and/or materials would be placed within SCE ROW or franchise. Construction laydown areas would be accessed by construction vehicles using the established access road network. Table 3-2 and Figures 3-5 and 3-7 identify the locations of the proposed construction laydown areas and the land that they would occupy. Construction laydown areas are sited, where possible, in areas that are previously disturbed and that require limited grading. However, construction laydown areas may require light grading/brushing prior to use. At the completion of construction activities, the construction laydown areas would be restored to preconstruction conditions or to the landowner's requirements.

Materials commonly located at the construction laydown areas along the subtransmission line would include, but not be limited to, construction equipment, portable sanitation facilities, foundation cages, steel bundles, steel/wood poles, conductor reels, hardware, insulators, cross arms, signage, consumables, waste materials for salvaging, recycling, or disposal, and stormwater Best Management Practice (BMP) materials (e.g., straw wattles, gravel, and silt fences).

3.6.4 Construction Work Sites

Construction work sites are areas that have previously been established at pole locations. Construction work sites were typically developed with maximum dimensions of approximately 200 feet by 150 feet. A construction work site is generally used for the staging, assembly, and erection of the TSPs or LWS poles, and sites for equipment pads. In most cases, access and spur roads may overlap with construction work sites. During construction, personnel may walk in areas outside of construction work sites after such areas have been surveyed; similarly, equipment may extend in the air beyond anticipated boundaries without additional ground disturbance (such as in the case of a crane boom or arm).

3.6.5 Vehicle Maintenance and Refueling

Routine maintenance and refueling of construction equipment and fuel storage by SCE personnel would occur at SCE's Thousand Oaks Service Center, Valencia Service Center, or Ventura Service Center. These locations are equipped with approved fuel stations. All refueling and storage of fuels at these facilities would be in accordance with site-specific stormwater permits, and refueling equipment procedures would be included within the Storm Water Pollution and Prevention Plan (SWPPP).

Smaller engine equipment such as small compressors, generators, and chainsaws, would be field refueled from approved 5-gallon or smaller fuel containers. Any portable equipment designed to be placed on the ground adjacent to a work area would be placed on tarpaulins to catch any inadvertent dripping or spills (SCE, 2014).

There may be a need for SCE's helicopter contractor to refuel the helicopter at designated helicopter landing zones. The helicopter would be refueled by a fuel tender and helicopter mechanic using a fuel truck. During helicopter refueling an absorbent mat would be laid on the ground below the helicopter fuel tank port to catch any inadvertent spills or drips. Spill prevention procedures as outlined within the California Stormwater Quality Association "Spill Prevention and Control WM-4 (January 2011) and "Vehicle and Equipment Fueling NS-9" (January 2011) would be incorporated into the SWPPP.

3.6.6 Helicopter Access

A Hughes 500E or similar light-duty helicopter would be used during construction of the Proposed Project to facilitate construction, including during the stringing of conductor, dependent upon recommendations by the installation contractor. This helicopter type may also be used to install marker balls on conductor, where appropriate, and to dismantle LSTs. Helicopter payloads would include marker balls, LST parts, and a sock line to be used during wire stringing. Helicopter landings in the Proposed Project area would be limited to the identified helicopter landing zones as identified in Table 3-2 and Figures 3-5 and 3-7. The helicopter and their support vehicles and equipment would be staged from Camarillo Airport, SCE's Air Operations in Chino, or from a contractor's facility.

SCE's helicopter contractor would develop a Proposed Project-specific helicopter use plan, which would be reviewed by SCE to ensure industry best management practices are met. Flight paths would be determined immediately prior to construction by the helicopter contractor. Flight paths would be filed with the appropriate authorities as necessary. Helicopters would be operated within the Proposed Project area between the hours of 7:00 a.m. and 7:00 p.m.

3.6.7 Vegetation Clearance

Blade-grading, mowing, or brushing may occur during construction activities in Project Segments 2, 3, and 4 depending upon the condition of the access roads, spur roads, and construction work sites at the commencement of construction. Vegetation that has grown in these areas in the period between past construction activities and Proposed Project construction activities would be trimmed and/or removed. "Brushing" (i.e., removal of shrubs and other low-lying vegetation within approximately 2 to 5 feet of the edge of access or spur roads to prevent vegetation from intruding into the roadway) would generally be accomplished using a mower-type attachment mounted to a tractor; and in some instances, areas may be brushed by individuals using heavy-duty "weed whacker" type equipment.

Trees that are directly under the new line and of a variety that could grow into the lines would be removed. For trees that are adjacent to and could interfere with the new line, the decision to trim or remove specific trees would be based on the recommendation of SCE's arborist and/or biologist and would depend on the type, size, location, and condition of the trees. No vegetation clearance is expected to occur within Segment 1. In portions of Segment 2, some tree trimming and/or removal may be necessary. Tree removal or trimming would depend on the type and size of the tree, and its location relative to construction work areas, and/or interference with CPUC General Order 95, *Rules for Overhead Electric Line Construction*. Currently, there is one eucalyptus tree identified just north of SR 118 (Los Angeles Avenue) that would need to be removed; along Montair Drive, approximately 10 to 12 carrotwood trees would need to be trimmed, and two to three pine trees would need to be removed. There are no trees that would be removed or trimmed in Segment 3. In Segment 4, within the outer fenceline of Newbury Substation, approximately 30 to 40 existing trees would require trimming or removal to facilitate construction including myoporum, eucalyptus, Brazilian pepper, California pepper, and Chinese elm trees. Trees would be trimmed or removed using typical arborist equipment, such as bucket trucks, chainsaws, and chippers.

Ministerial permits for tree removal and trimming during construction would be acquired from the City of Moorpark, City of Thousand Oaks, and Ventura County as appropriate.

3.6.8 Subtransmission Line Construction (Above Ground)

The following section describes the construction methodology proposed for installation of the aboveground portion of the new subtransmission line. This would include the following activities: pole installation; conductor and subtransmission line stringing, removal of existing poles, and subtransmission source line energizing. Tower removal and pole installation would require the use of a variety of equipment as presented in Table 3-4, *Construction Equipment and Workforce Estimates*; all construction vehicles and equipment would be moved to pole installation or tower removal sites overland using the existing subtransmission access road network and spur roads.

3.6.8.1 Tower and Pole Removal

As indicated in Figure 3-7, 14 LSTs would be removed within Segment 3 and six wood poles would be removed within Segment 4 at Newbury Substation. At the LST removal sites, previously established work areas would be used. A crane would be positioned approximately 60 feet from the tower location for dismantling purposes. In limited circumstances, a helicopter may be used to dismantle towers. Structures would be dismantled down to the foundations and the removed LSTs would be transported to a staging yard for recycling purposes. Footings would typically be removed 1 to 2 feet belowground and the holes would be filled with excess soil from the area, and smoothed to match the surrounding grade. All areas would be restored to preconstruction conditions or to the landowner's requirements.

A line truck with an attached boom would be used for wood pole removal activities at the Newbury Substation. Construction crew members would hand excavate around the wood pole; a boom would be attached to the pole, and the pole would then be lifted out and placed on the ground or on a trailer. The wood poles would be transported to an SCE facility for reuse or recycling and the remaining holes would be backfilled and compacted with excess soil from the area or with imported fill.

3.6.8.2 Pole Installation

If necessary, all new pole sites would be graded and/or cleared to remove vegetation and provide a reasonable level surface for footing construction. Furthermore, drainage would be designed to prevent ponding and erosive water flows that could damage the structure base. The graded area would be compacted and capable of supporting heavy vehicles.

Tubular Steel Poles

The Proposed Project would require installation of approximately 22 TSPs (note: one TSP at location 23 is partially installed) and 14 TSP foundations. TSP installation would be conducted in two phases: foundation installation, where necessary, then structure assembly/erection. Each TSP installation would use an existing temporary construction site approximately 200 feet by 150 feet that had been previously cleared and/or graded as necessary to provide a reasonably level surface free of vegetation for footing construction, assembly, and erection of TSPs.

Construction of each TSP foundation would require a single drilled, poured-in-place concrete footing that would form the structure foundation. The foundation process would start by drilling the hole using a truck or track-mounted excavators with various diameter augers to match the diameter requirements of the structure. The excavated holes would be approximately 6 to 8 feet in diameter and approximately 17 feet to 46 feet deep, which would result in excavation of 18 to 86 cubic yards of soil. The excavated material would be distributed at each structure site, used to backfill excavations from the removal of nearby LST (if applicable), or may be disposed of at an approved disposal facility in accordance with applicable laws.

Following excavation of the foundation footing, a steel reinforced rebar cage would be set, anchor bolts would be positioned, survey verified, and concrete would then be poured. Steel reinforced rebar cages would be assembled off-site and delivered to each TSP location by flatbed truck. Typically, TSP structures would require approximately 20 to 95 cubic yards of concrete delivered to each structure location. The top of the TSP foundations would extend approximately 2 to 5 feet above ground level.

In the event that the foundations would be placed in soft or loose soil and would extend below the groundwater level, the foundations may be stabilized with water, fluid stabilizers, and/or drilling mud slurry. If fluid stabilizers are utilized, mud slurry would be added in during the drilling process for the TSP foundations. Mud slurry would be placed in the hole after drilling to prevent the sidewalls from sloughing. The concrete for the foundation would then be pumped to the bottom of the hole, displacing the mud slurry. The mud slurry brought to the surface would be collected in a pit adjacent to the foundation, and then pumped out of the pit to be reused or discarded at an approved disposal facility.

During construction, existing concrete supply facilities would be used; concrete would be mixed at the facility. Concrete samples would be drawn at the time of pour and tested to ensure engineered strengths would be 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 the sampled concrete. Once this strength has been achieved, crews would be permitted to commence erection of the TSP.

TSPs consist of a separate base section and top section(s). The majority of the TSPs would have two sections (i.e., one base section and one top section); however, some of the taller TSPs would consist of three sections (i.e., one base section and two top sections). TSP sections would be hauled from a staging area to the structure site and, where feasible, a crane would unload the individual pole sections on the ground within the designated laydown area. While on the ground, the top section(s) would be configured with the necessary cross arms, insulators, and wire stringing hardware before being set in place. A crane would be used to set each base section on top of previously prepared foundations. When the base section is secured, the top section(s) of the TSP would be set into place onto the base section and the two sections (or three sections for the larger poles) would be bolted together. The sections may also be spot welded together for additional stability.

Light Weight Steel Poles

The Proposed Project would require the installation of two LWS poles at the Newbury Substation (pole locations 69 and 72). LWS pole installation would require excavation of holes using either an auger or a backhoe and would be installed into bored holes that would be approximately 2 to 3 feet in diameter and 10 feet deep. Depending on conditions at each of the LWS pole locations, the top sections may be configured with the necessary cross arms, insulators, and wire-stringing hardware while the sections are on the ground.

A line truck with an attached boom would be used to set the poles into prepared holes. Once the base section is secured, the top section would be placed onto the base section and the two sections would be bolted together. The two sections may also be spot welded together for additional stability. The pole sections could also be assembled into a complete structure and set by jacking both sections together while on the ground, but this would depend largely on the terrain and available equipment.

3.6.8.3 Conductor Stringing

Conductor stringing includes all activities associated with the installation of the wire onto the TSPs and LWS poles. Conductor stringing activities would occur along the length of segments 1 through 3 and a portion of Segment 4. These activities would include the installation of primary conductors, ground wire, insulators, stringing sheaves (rollers or travelers), vibration dampeners, weights, suspension, and dead-end hardware assemblies for the entire length of the route.

Ten stringing sites have been identified and established along the subtransmission alignment (see Figures 3-5 through 3-7). The stringing sites require relatively level areas to allow for maneuvering of the equipment and, when possible, these sites are located on existing roads and level areas to minimize the need for grading and cleanup. The approximate area needed for stringing sites is variable and depends upon terrain.

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 sites. On relatively straight alignments, typical wire pulls occur approximately every 10,000 feet. When the line alignment contains multiple deflections or is situated in rugged terrain, the length of the wire pull is diminished. Generally, stringing sites 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 would consist of a puller set-up positioned at one end and a tensioner set-up with a wire reel stand truck positioned at the other end. A bucket truck, or helicopter where use of a bucket truck would not be practical, would be used to install a lightweight sock line. 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 wire pull. The sock line would then be used to pull in the wire-pulling rope. The wire-pulling rope would be attached to the conductor using a swivel joint to prevent damage to the conductor and to allow the conductor to rotate freely to prevent complications from twisting as the conductor unwinds off the reel. After the conductor would be pulled in, any required mid-span splicing would be performed. Once the splicing would be completed, the conductor would be sagged to proper tension and dead-ended to structures. 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 structures. After the wire is dead-ended, the wire would be attached to all tangent structures.

The stringing site locations associated with the Proposed Project would be temporary and the land would be restored to its pre-construction condition following completion of pulling and splicing activities. The stringing sites may also be used for splicing and field snubbing of the conductors.

3.6.8.4 Guard Structures

Guard structures are temporary facilities that would be installed at some conductor transportation, flood control, and utility crossings. These structures would be designed to stop the downward movement of a conductor should it momentarily drop below a conventional stringing height. Guard structures would consist of standard wood poles 40 to 70 feet tall; however, temporary netting could be installed to protect some types of under-built infrastructure or specifically equipped boom-type trucks with heavy outriggers would be used instead of structures at locations of low vehicular traffic, i.e., where the pulled conductors would cross a driveway or infrequently used road or for electric distribution circuits or service. Two to four guard poles would be installed on either side of a crossing to prevent the conductor from dropping. SCE estimates 14 guard structures would be required to construct the Proposed Project. In addition to guard structures and boom trucks, safety devices such as traveling grounds and radio-equipped public safety vehicles would be utilized during conductor stringing activities. Traveling grounds are used to eliminate potential for electrical shock hazards during stringing operations and are installed via the traveling ground rollers on the conductor at the “wire pull.” Radio communication is used for traffic control and to serve as an emergency alert to stop all activity when a safety issue or concern arises.

3.6.8.5 Installation of Marker Balls

Marker balls would be installed on several of the Proposed Project subtransmission line spans where appropriate, in accordance with FAA recommendations. In most cases, marker balls would be installed by a light-duty helicopter to minimize ground disturbance and the inability to install from the ground due to rugged terrain. Helicopter installation may require an outage that de-energizes nearby energized subtransmission lines and transmission lines. Helicopter landing zone staging areas would be established in areas shown in Figures 3-5 and 3-7. Helicopter landing zones would be located in existing disturbed areas.

3.6.9 Subtransmission Line Construction (Below Ground)

The following sections describe the construction activities associated with installing the underground 66 kV subtransmission line for the Proposed Project.

3.6.9.1 Trenching

The Proposed Project would require the installation of approximately 500 feet of new underground 66 kV subtransmission line conduit within Moorpark Substation. A 20-inch wide by 5-foot deep trench would be required to install the 66 kV subtransmission line conduit. 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. Approximately 185 cubic yards of excavated materials would be disposed of at an approved disposal facility in accordance with all applicable laws. Should groundwater be encountered, it would be pumped into a tank and disposed of at an approved disposal facility.

The trench for underground construction would be widened and shored where appropriate to meet California Occupation and Safety Health Administration (CalOSHA) 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.

3.6.9.2 Duct Bank Installation

After completion of trenching for the underground 66 kV subtransmission line, 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 would consist of six 5-inch diameter PVC conduits fully encased with a minimum of 3 inches of concrete all around. 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 3-10, *Typical Subtransmission Duct Bank.* The 66 kV duct bank would be installed in a vertically stacked configuration. Each duct bank would be approximately 21 inches high by 20 inches wide with a minimum of 36 inches of cover. Clearances and depths would meet requirements set forth within Rule 41.4 of CPUC General Order 128.

3.6.9.3 Cable Pulling, Splicing, Termination

Following duct bank installation, SCE would pull the electrical cables through the duct banks, splice the cable segments at each of the existing vaults, and terminate cables at the TSP 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 each of the 66 kV subtransmission phases would be pulled through the individual conduits in the duct bank. 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.

3.6.10 Substation Upgrades

As described in Section 3.6.9, above, some below-grade construction would occur at the Moorpark Substation to accommodate installation of underground subtransmission cable, conduits, and duct banks. As shown in Figure 3-7, six wood poles would be replaced with four TSPs and two LWS poles at Newbury Substation. In addition, construction would be required for reconductoring of the bus at Newbury Substation.

3.6.11 Energizing Subtransmission Line

Energizing the new line would be the final step in completing construction of the Proposed Project. Customer outages would not be expected to affect customers served by either Moorpark Substation or Newbury Substation as a result of energizing the new Moorpark-Newbury 66 kV Subtransmission Line. However, during construction, the existing Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line would be de-energized periodically. The Pharmacy section of the Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line, which includes an existing SCE customer-dedicated substation (i.e., Pharmacy 66/16 kV Substation) would be de-energized to accommodate construction activities that would be associated with terminating the new subtransmission line into Newbury Substation.[2]

To reduce the need for any additional electric service interruptions during construction, de-energizing and re-energizing the existing Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line may occur at night when electrical demand is low and outages can be arranged.

[2] SCE would coordinate the required outage(s) with its single commercial customer served by Pharmacy 66/16 kV Substation to minimize disruption to their operations as feasible.

3.6.12 Land Disturbance

Land disturbance for the Proposed Project would include surface modifications to rehabilitate existing access and spur roads; to rehabilitate and/or establish construction work areas for pole installation, pole and tower removal, and stringing locations; and for the installation of guard locations. It is estimated that the total land disturbance that would occur for the Proposed Project would be 2.92 acres. Construction of all other components would utilize previously disturbed areas. The estimated amount of land disturbance for each Proposed Project component is summarized below in **Table 3-3,** *Estimated Area of Land Disturbance*.

TABLE 3-3
ESTIMATED AREA OF LAND DISTURBANCE

Project Feature	Quantity or Miles	Acres Disturbed During Construction	Acres to be Restored
Existing Access/Spur Roads[a]	21 miles	0.54	0
New TSPs[b]	22 sites	0	0
New LWS Poles[c]	2 sites	0	0
Wood Poles Removal Sites[d]	6 sites	0	0
Stringing Sites[e]	10 sites	0.77	5.42
Guard Structures[f]	14 sites	1.61	1.61
Existing LST Removal Sites[g]	14 sites	0	0.08
Total[h]		**2.92**	**7.11**

a Area disturbed during construction would be associated with minor rehabilitation work (e.g., blade-grading, mowing, or bushing, and/or light brushing) within previously disturbed areas.
b Installation of the 22 new TSPs would require no new land disturbance.
c All LWS poles would be installed within the outer fenceline of Newbury Substation and would not require the establishment of construction work sites.
d The wood pole removal sites are all located within the outer fenceline of Newbury Substation and would not require the establishment of construction work sites.
e Area disturbed during construction would be associated with minor rehabilitation work (e.g., blade-grading, mowing, or bushing, and/or light brushing) at two stringing sites within previously disturbed areas. Following construction, all 10 string sites would be restored.
f Area disturbed to establish guard structure sites would occur in previously undisturbed areas.
g The construction areas used for removing existing LSTs would utilize previously disturbed areas and would not require the establishment of construction work sites. Following construction, the area between TSP locations 39 and 40 (0.08 acres) would be restored.
h Trenching to install duct bank at Moorpark Substation is not reflected here; this work would occur on previously disturbed SCE-owned lands dedicated to utility functions.

3.6.13 Storm Water Pollution Prevention Plan

Construction of the Proposed Project would disturb a surface area greater than 1 acre; therefore, SCE would be required to obtain coverage under the Statewide Construction General Permit (Order No. 2009-0009-DWQ) from the Los Angeles Regional Water Quality Control Board (RWQCB) (Region 4). To obtain coverage under this permit, SCE would prepare a Storm Water Pollution Prevention Plan (SWPPP) that includes Proposed Project information, design features, monitoring and reporting procedures, as well as Best Management Practices (BMPs). BMPs such as stormwater runoff quality control measures (boundary protection), dewatering procedures, spill reporting, and concrete waste management would be implemented during construction of the

Proposed Project as required under the permit. The SWPPP would be based on final engineering design and would be applicable to all components of the Proposed Project.

3.6.14 Site Cleanup and Waste Management

SCE would clean up all areas temporarily disturbed by construction of the Proposed Project (e.g., staging areas, construction set up 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.

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 applicable requirements. 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 a staging yard as the material awaits salvage, recycling, or 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 municipal landfill which the Regional Water Quality Control Board (RWQCB) has approved for the disposal of treated wood waste.

Material excavated for the Project would either be used as fill, backfill for new TSP or LWS poles installed for the Project, made available for use by the landowner, or reused or disposed of off-site in accordance with applicable requirements. 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.

All waste materials that are not recycled would be categorized by SCE in order to assure appropriate final disposal. Solid waste from the Proposed Project, including excavated materials, would be delivered to one of the following locations: Toland Road Landfill, Simi Valley Landfill and Recycling Center, Bradley Landfill and Recycle, or Antelope Valley Landfill.

Construction of the 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. Safety Data Sheets would be made available at the construction site for all crew workers.

3.6.15 Construction Related Water Use

During construction, water would likely be used to minimize the quantity of airborne dust created by construction activities. Water would also be used during brushing, mowing, and road and work area rehabilitation at the approaches to work areas for installation of TSPs and LWS poles, removal of LSTs and wood poles, and at areas for stringing conductor and helicopter landing zones (other than Moorpark Substation). These activities would require approximately 37 acre-feet of water altogether, most likely brought to the site by water trucks.

3.6.16 Construction Workforce and Equipment

The estimated number of personnel and equipment required for completion of the Proposed Project are summarized in **Table 3-4**, *Construction Equipment and Workforce Estimates*. 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.

TABLE 3-4
CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES

Activity and Number of Personnel	Number of Work Days	Quantity and Equipment Type	Duration of Use (Hours/Day)	Fuel Type
66 kV Subtransmission Construction				
Survey (4 people)	10	2 1-Ton Trucks, 4x4	8	Gas
Marshalling Yard (4 people)	Duration of Project	1 1-Ton Truck, 4x4	4	Gas
		1 R/T Forklift	6	Diesel
		1 Boom/Crane Truck	2	Diesel
		1 Water Truck	8	Diesel
		1 Truck, Semi Tractor	2	Diesel
Tree Trimming & Removal (5 people)	12	1 Dump Truck, 4x4	8	Diesel
	12	1 1-Ton Truck	8	Diesel
	12	1 Chipper	4	Gas
	6	1 Stump Grinder	6	Gas
	12	1 Manlift/Bucket Truck	8	Diesel
ROW Clearing (5 people)	2	1 1-Ton Truck, 4x4	8	Gas
		1 Backhoe/Front Loader	6	Diesel
		1 Track Type Dozer	6	Diesel
		1 Motor Grader	6	Diesel
		1 Water Truck	8	Diesel
		1 Lowboy Truck/Trailer	4	Diesel
Roads & Landing Work (5 people)	6	1 1-Ton Truck, 4x4	8	Gas
		1 Backhoe, Front Loader	4	Diesel
		1 Track Type Dozer	4	Diesel
		1 Motor Grader	6	Diesel
		1 Water Truck	8	Diesel
		1 Drum Type Compactor	6	Diesel
		1 Excavator	4	Diesel
		1 Lowboy Truck/Trailer	4	Diesel
Guard Structure Installation (6 people)	3	1 3/4-Ton Truck, 4x4	8	Gas
		1 1-Ton Truck, 4x4	8	Gas
		1 Compressor Trailer	4	Diesel
		1 Manlift/Bucket Truck	4	Diesel
		1 Boom/Crane Truck	6	Diesel
		1 Auger Truck	4	Diesel
		1 Extendable Flat Bed Pole Truck	8	Diesel

TABLE 3-4 (Continued)
CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES

Activity and Number of Personnel	Number of Work Days	Quantity and Equipment Type	Duration of Use (Hours/Day)	Fuel Type
66 kV Subtransmission Construction (cont.)				
Remove Existing Conductor & Ground Wire (14 people)	5	2 1-Ton Trucks, 4x4	4	Gas
	15	2 Manlift/Bucket Trucks	8	Diesel
	15	2 Boom/Crane Trucks	8	Diesel
	10	1 Bull Wheel Puller	6	Diesel
	10	1 Sock Line Puller	6	Diesel
	15	1 Static Truck/Tensioner	6	Diesel
	15	2 Lowboy Truck/Trailers	4	Diesel
Wood & LWS Pole Removal (6 people)	1	2 1-Ton Trucks, 4x4	8	Gas
		1 Compressor Trailer	4	Diesel
		1 Manlift/Bucket Truck	6	Diesel
		1 Boom/Crane Truck	6	Diesel
		1 Flat Bed Pole Truck	8	Diesel
LST Removal (8 people)	28	2 1-Ton Trucks	4	Gas
		1 Compressor Trailer	8	Diesel
		1 R/T Crane (M)	6	Diesel
		1 Boom/Crane Truck	6	Diesel
		1 Flat Bed Truck/Trailer	4	Diesel
LST Foundation Removal (4 people)	7	1 3/4-Ton Truck, 4x4	4	Gas
		1 Compressor Trailer	8	Diesel
		1 Backhoe/Front Loader	6	Diesel
		1 Dump Truck	6	Diesel
		1 Excavator	4	Diesel
Install TSP Foundations (6 people)	28	1 3/4-Ton Truck, 4x4	4	Gas
	28	1 Boom/Crane Truck	4	Diesel
	28	1 Backhoe/Front Loader	6	Diesel
	28	1 Auger Truck	6	Diesel
	28	1 Water Truck	8	Diesel
	28	1 Dump Truck	4	Diesel
	19	3 Concrete Mixer Trucks	2	Diesel
TSP Haul (4 people)	6	1 3/4-Ton Truck, 4x4	8	Gas
		1 Boom/Crane Truck	6	Diesel
		1 Flat Bed Pole Truck	8	Diesel
TSP Assembly (8 people)	22	2 3/4-Ton Trucks, 4x4	4	Gas
		2 1-Ton Trucks, 4x4	4	Gas
		1 Compressor	6	Diesel
		1 Boom/Crane Truck	8	Diesel
TSP Erection (8 people)	22	2 3/4-Ton Trucks, 4x4	4	Gas
		2 1-Ton Trucks, 4x4	4	Gas
		1 Compressor	4	Diesel
		1 Manlift/Bucket Truck	8	Diesel
		1 Boom/Crane Truck	8	Diesel
LWS Pole Haul (4 people)	1	1 3/4-Ton Truck, 4x4	8	Gas
		1 Boom/Crane Truck	6	Diesel
		1 Flat Bed Pole Truck	8	Diesel

TABLE 3-4 (Continued)
CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES

Activity and Number of Personnel	Number of Work Days	Quantity and Equipment Type	Duration of Use (Hours/Day)	Fuel Type
66 kV Subtransmission Construction (cont.)				
LWS Pole Assembly (8 people)	1	2 3/4-Ton Trucks, 4x4	4	Gas
		2 1-Ton Trucks, 4x4	4	Gas
		1 Compressor Trailer	6	Diesel
		1 Boom/Crane Truck	8	Diesel
Install LWS Pole (6 people)	1	1 1-Ton Truck, 4x4	8	Gas
		1 Manlift/Bucket Truck	6	Diesel
		1 Boom/Crane Truck	6	Diesel
		1 Auger Truck	4	Diesel
		1 Backhoe/Front Loader	8	Diesel
		1 Extendable Flat Bed Pole Truck	8	Diesel
Install Conductor (20 people)	96	1 1-Ton Truck, 4x4	4	Gas
	96	1 Manlift/Bucket Truck	8	Diesel
	96	1 Boom/Crane Truck	8	Diesel
	96	1 Dump Truck	2	Diesel
	9	1 Wire Truck/Trailer	6	Diesel
	34	1 Sock Line Puller	6	Diesel
	65	1 Bull Wheel Puller	6	Diesel
	96	1 Static Truck/Tensioner	6	Diesel
	96	1 Backhoe/Front Loader	2	Diesel
	96	1 Lowboy Truck/Trailer	2	Diesel
	6	1 Hughes 500 Helicopter	1	Jet A
	6	1 Fuel Truck	1	Diesel
Guard Structure Removal (6 people)	2	1 3/4-Ton Truck, 4x4	8	Gas
		1 1-Ton Truck, 4x4	8	Gas
		1 Compressor Trailer	4	Diesel
		1 Manlift/Bucket Truck	4	Diesel
		1 Boom/Crane Truck	6	Diesel
		1 Extendable Flat Bed Pole Truck	8	Diesel
Restoration (7 people)	3	2 1-Ton Trucks, 4x4	4	Gas
		1 Backhoe/Front Loader	4	Diesel
		1 Motor Grader	6	Diesel
		1 Water Truck	8	Diesel
		1 Drum Type Compactor	4	Diesel
		1 Lowboy Truck/Trailer	4	Diesel
Duct Bank Installation (6 people)	2	2 1-Ton Trucks, 4x4	4	Gas
		1 Compressor Trailer	4	Diesel
		1 Backhoe/Front Loader	6	Diesel
		2 Dump Trucks	6	Diesel
		1 Pipe Truck/Trailer	6	Diesel
		1 Water Truck	8	Diesel
		3 Concrete Mixer Trucks	2	Diesel
		1 Lowboy Truck/Trailer	4	Diesel

TABLE 3-4 (Continued)
CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES

Activity and Number of Personnel	Number of Work Days	Quantity and Equipment Type	Duration of Use (Hours/Day)	Fuel Type
66 kV Subtransmission Construction (cont.)				
Install Underground Cable (8 people)	5	2 1-Ton Trucks, 4x4	4	Gas
		1 Manlift/Bucket Truck	6	Diesel
		1 Boom/Crane Truck	6	Diesel
		2 Wire Truck Trailers	6	Diesel
		1 Puller	6	Diesel
		1 Static Truck/Tensioner	6	Diesel
Substation Construction				
Electrical Work, Moorpark Substation (25 people)	10	2 40 ft. Manlifts	6	Diesel
	10	1 Forklift	6	Diesel
	10	1 Boom Truck	6	Diesel
	10	1 Flat Bed, 5 Ton	2	Gas/Diesel
	10	1 Office Trailer	8	Electric
	10	1 Wiring Trailer	8	Electric
	10	2 Pickups	2	Gas/Diesel
	10	1 Pickup w/ Fuel Tank	2	Gas/Diesel
	5	1 Weld Truck	2	Gas/Diesel
	10	1 Tool Trailer	8	Electric
Wiring Work, Moorpark Substation (3 people)	55	2 Pickup Trucks	2	Gas
		1 Carry-All	2	Gas
Test/Maintenance Work, Moorpark Substation (5 people)	35	2 Pickup Trucks	2	Gas/diesel
	4	1 Gas/Processing Trailer	4	Electric
	5	2 40 ft Manlifts	8	Diesel
Electrical Work, Newbury Substation (25 people)	10	2 40 ft Manlifts	6	Diesel
	10	1 Forklift	6	Diesel
	10	1 Boom Truck	6	Diesel
	10	1 Flat Bed, 5 Ton	2	Gas/Diesel
	10	1 Office Trailer	8	Electric
	10	1 Wiring Trailer	8	Electric
	10	2 Pickup Trucks	2	Gas/Diesel
	10	1 Pickup w/ Fuel Tank	2	Gas/Diesel
	5	1 Weld Truck	2	Gas/Diesel
	10	1 Tool Trailer	8	Electric
Wiring Work, Newbury Substation (2 people)	30	2 Pickup Trucks	10	Gas
Test/Maintenance Work, Newbury Substation (5 people)	35	2 Pickup Trucks	2	Gas/Diesel
	4	1 Gas/Processing Trailer	4	Electric
	5	2 40 ft Manlifts	8	Diesel

SOURCE: SCE, 2013a

3.6.17 Construction Schedule

SCE anticipates that construction of the Proposed Project would take approximately 10 months and expects that construction would occur between fall of 2015 and summer 2016; clean-up would continue through December of 2016. Construction would commence following CPUC approval, final engineering, and procurement activities, and receipt of applicable permits. Construction work would normally occur between 7:00 a.m. and 7:00 p.m. Monday through Saturday. Work hours would be in accordance with local ordinances to the extent feasible, with variances to be obtained from the local jurisdiction as necessary in the event construction activities would occur on days or hours outside of what is specified by ordinance.

3.7 Project Operation and Maintenance

The new and reconductored 66 kV subtransmission lines would be maintained in a manner consistent with CPUC General Order 95, *Rules for Overhead Electric Line Construction*, and General Order 128, *Rules for Construction of Underground Electric Supply and Communication Systems*, as applicable. Normal operation of the 66 kV subtransmission lines would be controlled remotely through SCE control systems, and manually in the field as required.

General Order 165 established minimum requirements for electric subtransmission and distribution facilities, regarding inspections, record-keeping, and reporting. SCE inspects its energized subtransmission overhead facilities a minimum of once per year via ground and/or aerial observation. The frequency of inspection and maintenance activities would depend upon weather effects and any unique problems that may arise due to such variables as substantial storm damage or vandalism. Maintenance activities would include 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. The majority of operation and maintenance activities of overhead facilities are performed from existing access roads with no surface disturbance. However, some repair work on existing poles and towers could occur in undisturbed areas. Existing conductors could require re-stringing to repair damages that could occur due to an unforeseen event such as a storm. 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.[3]

Routine access road and work area maintenance is conducted, and would continue to be conducted, on an annual and/or as-needed basis. Vegetation would be maintained in a manner that would facilitate access and for fire prevention, and blading would occur on an as-needed basis to smooth over washouts, eroded areas, and washboard surfaces. Maintenance could include

3 Such work would typically be exempt from CPUC GO 131-D permit to construct requirements and/or CEQA, depending on the nature of the work or emergency associated with such damage. In an emergency situation where the conductor is damaged and may pose a risk to public health and safety, SCE would replace the conductor pursuant to the applicable CEQA categorical or statutory exemption for emergency repairs (e.g., CEQA Guidelines Section 15269 and GO 131-D Section III.B.1.h). Even in situations where the conductor may be damaged, but no immediate emergency is presented, SCE would replace such conductor pursuant to CEQA Guidelines Section 15302 and GO 131-D, Section III.B.1.e (the placing of new or additional conductors, insulators, or their accessories on supporting structures already built).

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. Additional maintenance activities could include repair, replacement, and installation of stormwater diversion devices on an as-needed basis. Insulators could require periodic washing with water to prevent the buildup of contaminants such as dust, salts, droppings, and condensation, and reduce the possibility of electrical arcing that would result in circuit outages and potential fire. The frequency of insulator washing would be based on local conditions and build-up of contaminants. Replacement of insulators, hardware, and other components would be performed as needed to maintain circuit reliability.

Regular tree trimming would be performed 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 trimming standards for distances from overhead lines have been set by the CPUC (General Order 95, Rule 35), Public Resources Code Section 4293, Title 14 California Code of Regulations, Article 4, and other government and regulatory agencies. SCE's approach to tree trimming is to remove at least the minimum required by law plus one year's growth dependent upon the species.

A 10-foot radial clearance around non-exempt poles (as defined by Title 14 California Code of Regulations, Article 4) would be maintained in accordance with Public Resources Code Section 4292. In addition, maintenance for poles within wildland fire areas would include clearing of vegetation around the poles. In some cases, poles may not have existing access roads and would be accessed on foot, by helicopter, or by creating temporary access areas. Operation and maintenance-related helicopter activities could include transportation of transmission line workers, delivery of equipment and materials to structure sites, structure placement, hardware installation, and conductor stringing operations. Helicopter landing areas could occur where access by road is infeasible. In addition, helicopters must be able to land within or near SCE ROWs, which could include landing on access or spur roads.

In addition to regular operation and maintenance activities, SCE would conduct 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.

3.8 Applicant Proposed Measures

SCE identified a number of project features in its PEA that were implemented to avoid or minimize environmental impacts during past construction activities associated with the project. SCE has also committed to implementing the project features to avoid or reduce potential impacts of the Proposed Project (which they refer to as "future construction activities") (SCE, 2013a). Although SCE explicitly indicates in its PEA that it has proposed no Applicant Proposed Measures (APMs), for all practical purposes SCE's project features would function as APMs.

Therefore, to maintain clarity in the EIR analyses, SCE's project features are identified and numbered here as APMs. These APMs would be implemented as part of the Proposed Project, and are not considered "mitigation measures" in this EIR. If the EIR is certified and the Proposed Project is approved, SCE's implementation of and compliance with these APMs would be monitored and enforced by the CPUC.

APM AQ-1: Air Quality Protection. SCE has implemented, and would implement, a number of practices, including minimizing equipment idling time and maintaining equipment engines in good condition and in proper tune as per manufacturers' specifications, to reduce emissions.

SCE's practices for the control of fugitive dust emissions, which were implemented during past construction activities and would be implemented during future construction activities, incorporate many of the recommended measures described in the Ventura County Air Pollution Control District's (VCAPCD) Model Fugitive Dust Mitigation Plan, which is reproduced verbatim below:[4]

1. The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.

2. Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.

3. Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities:

    a. All trucks shall be required to cover their loads as required by California Vehicle Code §23114.

    b. All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.

4. Graded and/or excavated inactive areas of the construction site shall be monitored by (indicate by whom) at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.[5]

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[4] This text is taken verbatim, including the parenthetical remark "(indicate by whom)", from the Ventura County Air Quality Control District's Ventura County Air Quality Assessment Guidelines.

[5] SCE did not/may not always undertake soil stabilization activities in areas that were/are inactive for more than four days due to prohibition of construction activities to protect nesting birds.

5. Signs shall be posted on-site limiting traffic to 15 miles per hour or less.[6]

6. During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.

7. Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.

8. Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

APM BIO-1: General.

- Where wood subtransmission poles have been replaced with LWS poles during past construction activities, the previously-installed poles would be retrofitted to be avian-safe with newly available equipment and consistent with the *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (Avian Power Line Interaction Committee, 2006).

- During future construction activities, newly-installed LWS poles would be designed to be avian-safe with newly available equipment and consistent with the *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (Avian Power Line Interaction Committee, 2006).

- Clearance surveys, including avian species, will 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 could be present during construction activities. Clearance surveys will be conducted by a qualified botanist and wildlife biologist and will be limited to areas directly impacted by construction activities.

- A qualified biologist will be present during clearing and restoration activities to ensure that native habitat (coastal sage scrub) removal will be minimized.

- Restoration activities in disturbed areas of native habitat (coastal sage scrub) will continue to be implemented in accordance the CDFW SAA and HRMP requirements, as applicable.

- Implement Worker Environmental Awareness Training (See [PEA] Section 3.9.7).

- Surveys for protected trees will be conducted by a certified arborist to identify trees meeting regulatory protection standards. When applicable, the proper permit will be obtained for trimming and/or removal of protected trees.

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[6] SCE did/will not post speed limit signs along the access roads; the design of the roads are not conducive to travel above 15 mph by the types of vehicles used during past construction activities.

APM BIO-2: Special Status Plants.

- Focused surveys for Lyon's pentachaeta and Conejo dudleya to be conducted no more than 30 days prior to start of construction in areas with potentially suitable habitat.[7]
- Areas supporting Lyon's pentachaeta will be flagged prior to project activities by a qualified biologist and avoided during construction. In addition, a biological monitor will be present during project activities occurring within the vicinity of these resources to ensure that no sensitive species will be impacted.[8]
- Areas supporting Conejo dudleya will be flagged prior to project activities by a qualified biologist and avoided during construction. In addition, a biological monitor will be present during project activities occurring within the vicinity of these resources to ensure that no sensitive species will be impacted.[9]
- When digging holes for pole replacements within Lyon's pentachaeta critical habitat the upper six (6) inches of topsoil will be salvaged/stockpiled within Lyon's pentachaeta critical habitat in order to maintain the native seed bank. The topsoil will be stored on a protective surface (such as a tarp), piled no more than three feet high, and was replaced (within two weeks) as the top layer when ground disturbing work was completed.[10]
- Where applicable, disturbed areas within Lyon's pentachaeta habitat will continue to be restored in accordance with the CDFW SAA and HRMP requirements.[11]

APM BIO-3: Special Status Birds.[12]

- Focused protocol surveys to be conducted prior to construction for the coastal California gnatcatcher (Polioptila californica californica).
- During the breeding season (February 15 through August 30), a protocol survey for the coastal California gnatcatcher will be conducted prior to construction by a wildlife biologist possessing a valid recovery permit from the USFWS for the coastal California gnatcatcher.
- If project activities occur during the breeding season (February 15 through August 30), a 500-foot buffer will be established around coastal California gnatcatcher nest sites, and this area will be avoided until the young fledged or until the birds abandoned the nest.
- No grading of habitat occupied by nesting coastal California gnatcatchers (including a 500-foot buffer area in all direction from the nest) will occur during the breeding season (February 15 through August 30).
- Project activities that will occur within 500 feet of a mapped coastal California gnatcatcher territory will be monitored by a qualified biologist who possesses a valid recovery permit for the species.

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7 August 30, 2010 letter from SCE to Ms. Diane K. Noda, Field Supervisor, Ventura Fish and Wildlife Office in [PEA] Appendix F.

8 *Ibid*.

9 *Op cit.* 6

10 *Op cit.* 6

11 February 16, 2010 California Department of Fish and Wildlife Streambed Alteration Agreement for the Moorpark Newbury Park 66kV Line Area Notification #1600-2011 0325-R5 Revision 2; contained in [PEA] Appendix F.

12 *Op cit.* 6

APM BIO-4: Nesting Bird Protection. SCE will develop and implement a project-specific nesting bird management plan (the plan) addressing nesting birds in collaboration with the CDFW and USFWS as needed. The plan would be an adaptive management plan to be updated as needed improvements are identified or conditions in the field change. Conditions typically implemented in this plan would include: nest management and avoidance, field approach (survey methodology, reporting, and monitoring), and the Project avian biologist qualifications. The avian biologist would be responsible for oversight of the avian protection activities including the biological monitors. In order to minimize impacts to nesting birds (common or special status), ongoing preconstruction surveys and daily sweep surveys of active construction areas by a qualified biologist would focus on breeding behavior and a search for active nests, as defined by CDFW and USFWS, within 500 feet of the Project. At a minimum, the plan would include the following:

- For vegetation clearing that needs to occur during the typical nesting bird season (February 1 to August 31; as early as January 1 for raptors) qualified biologists would conduct nesting bird surveys. If an active nest were located, the appropriate avoidance and minimization measures from the management plan would be implemented. If active nest removal is required, SCE would consult with CDFW and USFWS;

- During the typical nesting bird season, SCE would conduct preconstruction clearance surveys no more than 14 days prior to construction and in accordance with the adaptive management plan, to determine the location of nesting birds and territories. Preconstruction sweeps would be conducted within 3 days before construction begins at a given project location;

- Nest monitoring would be conducted by Project biological monitors with knowledge of bird behavior;

- Nesting deterrents (e.g., mooring balls, netting, etc.) would be used for inactive nests at the direction of the Project avian biologist in consultation with CDFW and USFWS;

- A Project avian biologist would determine the appropriate buffer area around active nest(s) and provisions for buffer exclusion areas (e.g., highways, public access roads, etc.) along with construction activity limits. The Project avian biologist would determine, evaluate, and modify buffers as appropriate based on species tolerance and behavior, the potential disruptiveness of construction activities, and surrounding conditions; and,

- The Project biological monitor would ensure implementation of appropriate buffer areas around active nest(s) during project activities. The active nest site and applicable buffer would remain in place until nesting activity concluded. Nesting bird status reports would be submitted according to the management plan.

APM CUL-1: Cultural and Paleontological Resources. A cultural resources survey of the Project area was conducted prior to past construction activities. Additionally, a number of physical protection and impact avoidance measures were implemented prior to, and during, past construction activities. These activities would also be implemented prior to, and during, future construction activities:

- Physically isolate within an Environmentally Sensitive Area (ESA) one cultural resource discovered during previous surveys. The ESA is an area in which construction activities are prohibited, and from which construction workers are excluded.
- Utilize an archaeological monitor on site during ground disturbing activity in the vicinity of identified archaeological resources.
- Conduct a preconstruction meeting to orient construction crews to sensitive areas prior to any ground disturbing activity within the vicinity of identified archaeological resources.
- Should cultural material that may yield sensitive information be uncovered during construction, then all work within a 15-meter radius of the discovery will be halted until the find is evaluated by a qualified archaeologist. In the case of unearthing human remains during excavation, no further disturbance occurs until the County Coroner makes the necessary findings as to origin and distribution, pursuant to Public Resources Code Section 5097.98. (No cultural material or human remains were uncovered during past construction activities.)
- If construction is halted because of an archaeological discovery, no work begins within that area until written notification from a qualified archaeologist is given to the Project Manager or construction foreman.

APM CUL-2: Unanticipated Discoveries. If previously unidentified cultural resources are discovered during construction, personnel would suspend work in the vicinity of the find. The resource would then be evaluated for listing in the California Register of Historical Resources (CRHR) by a qualified archaeologist, and, if the resource is determined to be eligible for listing in the CRHR, the resource would either be avoided or appropriate archaeological protective measures would be implemented.

If human skeletal remains are uncovered during Project construction, SCE and/or its contractors shall immediately halt all work in the immediate area, contact the applicable County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. Per Health and Safety Code Section 7050.5, upon the discovery of human remains, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. If the applicable County Coroner determines that the remains are Native American, it is anticipated that the coroner would contact the Native American Heritage Commission in accordance with Health and Safety Code Section 7050.5(c) and Public Resources Code Section 5097.98 (as amended by AB 2641). In addition, SCE shall ensure that the immediate vicinity where the Native American human remains are located is not damaged or disturbed by further development activity until SCE has discussed and conferred, as prescribed in Public Resource Code Section 5097.98, with the most likely descendants regarding their recommendations.

APM CUL-3: Paleontological Resources Protection. To protect paleontological resources, SCE would implement procedures including, but not limited to: preconstruction coordination; recommended monitoring methods; emergency discovery procedures; sampling and data recovery methods, if needed; museum storage coordination for any specimens and data recovered; and reporting requirements.

APM GEO-1: Geotechnical Design Considerations. A geotechnical data report was prepared for the Project prior to the beginning of construction. The investigation included a total of fourteen (14) soil and rock core borings to collect samples for laboratory testing and analyses and to evaluate the subsurface soil and bedrock conditions. The results of the investigation were utilized to identify the geologic setting and engineering properties of soil and bedrock underlying the ROW, as well as to provide recommendations for the design of foundations for the subtransmission line structures. A geotechnical investigation for the installation of TSPs at the Newbury Substation property would be performed prior to future construction activities at this location.

Based on the findings of the past and future geotechnical analyses, SCE did and would design Project components to minimize the potential for impacts from landslides, lateral spreading, subsidence, liquefaction, or collapse. Measures that have been, or may be, used to minimize impacts could include, but are not limited to avoidance of highly unstable areas and construction of pile foundations. Additionally, subtransmission poles are designed consistent with CPUC General Order 95, *Rules for Overhead Line Construction*.

APM NOI-1: Noise Reduction. Noise-generating construction activities were, and would be, conducted generally only during daytime hours (7:00 a.m. to 7:00 p.m.), Monday through Saturday. Construction activities were, and would be, conducted or staggered to ensure that the noise generated during construction would not exceed significance thresholds or durations identified by the County of Ventura noise regulations set forth in the County's Construction Noise Threshold Criteria and Control Plan (2010).

APM TRA-1: Traffic Control. Construction activities completed within public street ROWs may require the use of a traffic control service, and lane closures conducted in accordance with local ordinances and city permit conditions. Traffic control measures used are consistent with those published in the California Joint Utility Traffic Control Manual (California Inter-Utility Coordinating Committee, 2010) or local jurisdictional requirements.

As discussed in Section 4.16, during the past activities, traffic control measures were not needed due to the location and type of work conducted. During future construction activities, SCE would implement recommendations contained in the CJUTCM, including consulting and coordinating with local jurisdictions, to ensure the safe and efficient transit of vehicles, bicyclists, and pedestrians through laydown/work areas.

APM WET-1: Worker Environmental Awareness Training. Prior to the start of past construction activities, a Worker Environmental Awareness Plan (WEAP) was developed. A presentation was prepared by SCE and used to train site personnel prior to the commencement of work. A record of all trained personnel was kept. This process would be repeated prior to and during the future construction activities.

The WEAP training included a list of phone numbers of SCE environmental specialist personnel associated with the Project (archaeologist, biologist, environmental compliance coordinator, and regional spill response coordinator), and covered the following topics:

- Archaeological Resources Training
  - An Environmentally Sensitive Area (ESA) has been physically delineated and marked to protect an archaeological resource
  - All work and equipment staging, storing, and placement shall remain outside the ESA
  - The Project has implemented procedures to follow if unanticipated archaeological resources are discovered, including:
    - If archaeological resources are discovered during construction activities, all work in the vicinity of the find shall halt
    - The archaeological monitor shall be informed
    - The archaeological monitor shall notify the project foreman and SCE archaeologist immediately
    - Archaeological monitors have the authority to temporarily halt work in the area of archaeological discoveries until the resource has been evaluated by a qualified archaeologist
    - Work in the area of the discovery shall not resume until written notification is received from the SCE archaeologist
  - The SCE archaeologist will provide an estimate of how long an excavation of the resource would take
  - The Project has established procedures to follow if human remains are encountered. If human remains are encountered during earth-disturbing activities, State Health and Safety Code Section 7050.5 states that there "shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered [has made the appropriate assessment and] the recommendations concerning the treatment and disposition of the human remains has been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code."
- Biological Resources Training. Workers were informed of general and Project-specific biological impact reduction measures, including:
  - Keep vehicles on existing roads and pads
  - Avoid impacts to drainages
  - Minimize clearing of vegetation
  - Avoid trapping animals by covering trenches/holes at the end of each day
  - Workers informed of requirements and actions under Migratory Bird Treaty Act
  - Workers informed of protected plant and wildlife species that may be found in the Project Area, where they have been identified during past surveys, and protection measures that may be implemented

- SWPPP Training
  - Background on the regulatory climate
  - Education on individual and corporate responsibilities under the Clean Water Act
  - Presentation of activities covered under the Construction General Permit, and requirements of the Construction General Permit
  - Develop and implement a SWPPP
  - Eliminate or control non-stormwater
  - Visual inspections
  - Identification of SWPPP requirements
  - Daily inspection checklist
  - Maps
  - BMPs
  - Presentation on spill prevention and control, and spill notification procedures
  - Identification of common stormwater violations
  - Education on how to identify problems and devise solutions
  - Instruction on the importance of maintaining the construction site. All trash must be removed from the job sites daily, and all construction debris shall be removed at the end of construction
  - 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
  - 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 Project

3.9 Electric and Magnetic Fields Summary

Extremely low frequency (ELF) electric and magnetic fields (EMF) include alternating current (AC) fields and other electromagnetic, non-ionizing radiation from 1 Hz to 300 Hz. Power lines, like electrical wiring and electrical equipment, produce ELF fields at 60 Hz (OSHA, 2014). This EIR does not consider EMF in the context of the CEQA analysis of potential environmental impacts because: [1] there is no agreement among scientists that EMF creates a potential health risk, and [2] there are no defined or adopted CEQA standards for defining health risk from EMF. For example, on behalf of the CPUC, three scientists who work for the California Department of Health Services (DHS) were asked to review studies by the National Institutes of Environmental Health Sciences Working Group, the International Agency for Research on Cancer, and the British National Radiological Protection Board about possible health problems from electric and magnetic fields from power lines, wiring in buildings, some jobs, and appliances (Neutra et al., 2002). The results of their evaluation noted "important differences between the three DHS reviewers' conclusions" and made no recommendations about actions to be taken to address potential health risks (Id.).

However, recognizing that there is a great deal of public interest and concern regarding potential health effects from human exposure to EMF from transmission lines, this document does provide information regarding EMF associated with electric utility facilities and human health and safety. Thus, the EMF information in this EIR is presented for the benefit of the public and decision makers.

Potential health effects from exposure to electric fields from transmission lines (i.e., the effect produced by the existence of an electric charge, such as an electron, ion, or proton, in the volume of space or medium that surrounds it) typically do not present a human health risk since electric fields are effectively shielded by materials such as trees, walls, etc. Therefore, the majority of the following information related to EMF focuses primarily on exposure to magnetic fields (i.e., the invisible fields created by moving charges) from transmission lines.

After several decades of study regarding potential public health risks from exposure to power line EMF, research results remains inconclusive. Several national and international panels have conducted reviews of data from multiple studies and state that there is not sufficient evidence to conclude that EMF causes cancer. Most recently the International Agency for Research on Cancer and the California Department of Health Services both classified EMF as a possible carcinogen.

Presently, there are no applicable federal, state, or local regulations related to EMF levels from power lines or related facilities, such as substations. However, the CPUC has implemented a decision (D.06-01-042) requiring utilities to incorporate "low-cost" or "no-cost" measures for managing EMF from power lines up to approximately four percent of total project cost.

Using the four percent benchmark and otherwise in accordance with "EMF Design Guidelines" filed with the CPUC in compliance with CPUC Decisions 93-11-013 and 06- 01-042, SCE would implement low- and no-cost measures to reduce magnetic field levels for the Proposed Project. The specific measures are described in the Field Management Plan submitted by SCE in its application for a PTC the Proposed Project (SCE, 2013b). A copy of the Field Management Plan is included in the EIR as Appendix C and its measures are summarized in **Table 3-5**, *Low and No Cost Measures Identified for the Proposed Project*.

TABLE 3-5
LOW- AND NO-COST MEASURES IDENTIFIED FOR THE PROPOSED PROJECT

Project Component	Location	Proposed Low- and No-Cost Measures
Moorpark Substation (Proposed Project Segment 1)	Near the intersection of Gabbert Road and east Los Angeles Avenue in Moorpark, CA	• Place new substation electrical equipment (such as underground duct banks) away from the substation property lines closest to populated areas
Segment 2 (Proposed Project Segment 2) Existing Moorpark - Ormond Beach No. 1, 2, 3, and 4 220 kV T/Ls and the proposed Moorpark-Newbury 66 kV Subtransmission Line	Moorpark Substation to approximately 0.75 miles south of Santa Rosa Road	• Utilize subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Arrange conductors of proposed subtransmission line for magnetic field reduction
Segment 3a (Proposed Project Segment 3) Existing Moorpark - Ormond Beach No. 1, 2, 3, and 4 220 kV T/Ls; existing Moorpark-Newbury- Pharmacy 66 kV Subtransmission Line; and the proposed Moorpark- Newbury 66 kV Subtransmission Line	Just south of Santa Rosa Road to the breakoff point between the 220 kV and 66 kV lines	• Utilize subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Arrange conductors of subtransmission lines for magnetic field reduction • Utilize double-circuit construction that reduces spacing between circuits as compared with single-circuit construction
Segment 3b (Proposed Project Segment 3) Existing Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line and the proposed Moorpark-Newbury 66 kV Subtransmission Line	From the breakoff point between the 220 kV and 66 kV lines east for approximately 0.85 miles	• Utilize subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Arrange conductors of subtransmission line for magnetic field reduction • Utilize double-circuit construction that reduces spacing between circuits as compared with single-circuit construction
Segment 4a (Proposed Project Segment 4) Existing Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line and the proposed Moorpark-Newbury 66 kV Subtransmission Line	From the end of Segment 3 south to the junction point with Newbury-Thousand Oaks 66 kV Subtransmission Line	• Utilize subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Arrange conductors of subtransmission line for magnetic field reduction • Utilize double-circuit construction that reduces spacing between circuits as compared with single-circuit construction
Segment 4b (Proposed Project Segment 4) Existing Newbury-Thousand Oaks 66 kV Subtransmission Line; existing Moorpark-Newbury-Pharmacy 66 kV Subtransmission Line; and the proposed Moorpark-Newbury 66 kV Subtransmission Line	From the junction point with Newbury-Thousand Oaks 66 kV Subtransmission Line east and south to Newbury Substation	• Utilize subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Arrange conductors of subtransmission line for magnetic field reduction • Utilize double-circuit construction that reduces spacing between circuits as compared with single-circuit construction
Newbury Substation (Proposed Project Segment 4)	Near the intersection of Marion Street and Roth Court in Newbury Park, CA	No low- or no-cost measures are proposed for Newbury Substation

SOURCE: SCE, 2013b

References – Project Description

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