CHAPTER 3

Project Description

SCE proposes to construct the new Banducci 66/12 kilovolt (kV) Substation and associated components (Proposed Project) to add capacity to meet forecasted electrical demand, maintain system reliability, resolve anticipated service delivery voltage problems, and enhance operational flexibility in the unincorporated Cummings Valley area of Kern County. The Proposed Project is planned to be operational by June 2016.

The Proposed Project includes the following components:

- Construction of the new Banducci 66/12 kV Substation. The proposed Banducci Substation would be an unstaffed, automated, 56 megavolt ampere (MVA), low-profile substation with a potential capacity of 112 MVA at final build-out. The proposed 66/12 kV distribution substation would be located on approximately 6.3 acres in the unincorporated Cummings Valley area of Kern County (see Figure 3.1: Proposed Banducci Substation Layout and Plan).

- Construction of two new 66 kV subtransmission line segments that would loop the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line: one that would enter and one that would exit the proposed Banducci Substation to create the new Banducci-Kern River 1 66 kV Subtransmission Line and the new Banducci-Correction-Cummings 66 kV Subtransmission Line.

- Construction of three new underground 12 kV distribution getaways.

- Installation of telecommunications facilities to connect the proposed Banducci Substation to SCE's existing telecommunications system.

SCE notes that the information provided herein is based on SCE's preliminary design for the Proposed Project and is subject to change based on final engineering; construction contract award; conditions of permits; contractor preference; and/or technological, environmental, legal, or other constraints are encountered until construction is completed.

3.1 Project Location

The Proposed Project would be located within the Tehachapi, Brite, and Cummings Valleys in eastern Kern County. The Proposed Project would be largely within developed, disturbed, agricultural areas, and grasslands.

The Proposed Project's substation component would be located at the southeast corner of the intersection of Pelliser Road and unimproved Dale Road in the unincorporated Cummings Valley area of the southern-central portion of Kern County, California (see Figures 1.1 and 1.2).

Other associated components of the Proposed Project would be located as described below. The two proposed new 66 kV subtransmission line segments would enter and exit the proposed Banducci Substation on Pelliser Road. The proposed distribution getaways would be located in areas adjacent to the proposed Banducci Substation. The two proposed fiber optic telecommunications cable routes would leave the proposed Banducci Substation and extend northeast to Monolith Substation, one directly and one by way of Cummings Substation via a diverse route (see Figure 3.2 Proposed Telecommunication Routes); Cummings and Monolith substations are located approximately 6 and 12 miles east of the proposed Banducci Substation, respectively.

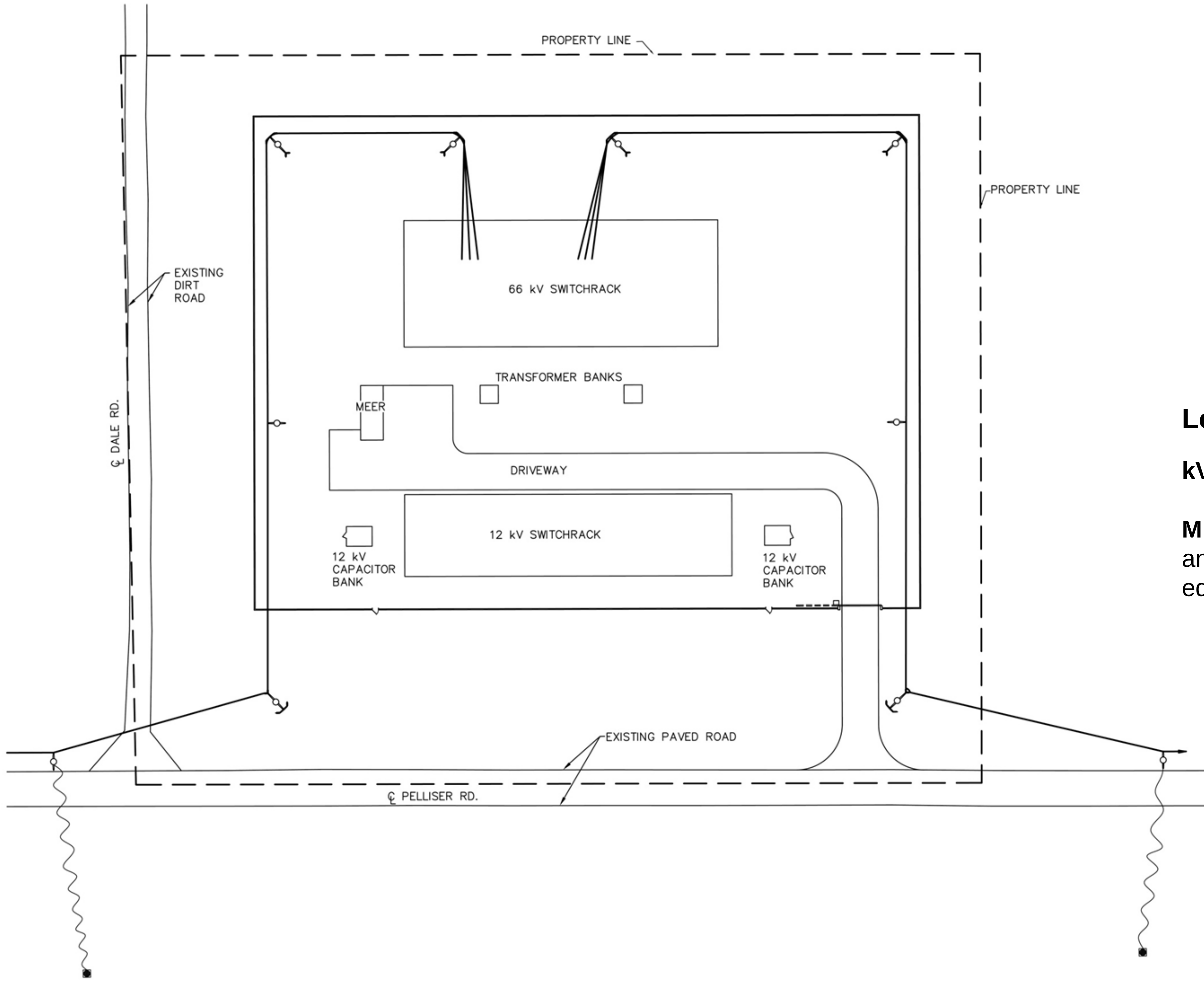
Geographical Location: The proposed Banducci Substation would be located southwest of State Route 58 and west of State Route 14 at the intersection of the southeast corner of Pelliser Road and unimproved Dale Road in the community of Cummings Valley, Kern County, California (see Figures 1.1 and 1.2). The Proposed Project's 66 kV subtransmission lines would loop into and out of this substation location from the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line, which currently passes near this location.

Two fiber optic telecommunications cables are proposed as part of the Proposed Project. One cable would connect the proposed Banducci Substation to the existing Cummings Substation and then continue on to the existing Monolith Substation. A second fiber optic telecommunications cable would connect the proposed Banducci Substation to the existing Monolith Substation.

General Land Use: The proposed Banducci Substation would be located on property that has a history of agricultural use.

Property Description: The proposed Banducci Substation would require fee acquisition for 6.3 acres. The proposed 66 kV subtransmission lines and proposed 12 kV distribution getaways would be located on fee-owned substation property until they exit the property and enter a public street right-of-way (ROW) where SCE holds franchise rights. The proposed telecommunication routes would consist of various land rights and pass through rural and urban areas with a mix of residential, commercial, and agricultural land uses. The proposed Banducci Substation site has an average approximate elevation of 3,838 feet above mean sea level (AMSL).

Further detail can be found in Section 3.6, Right-of-Way Requirements and Land Use Rights.



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kV – kilovolt

MEER – mechanical and electrical equipment room

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Figure 3.1: Proposed Banducci Substation layout and Plan

Proposed Banducci Substation Project

E N S W

Not at scale

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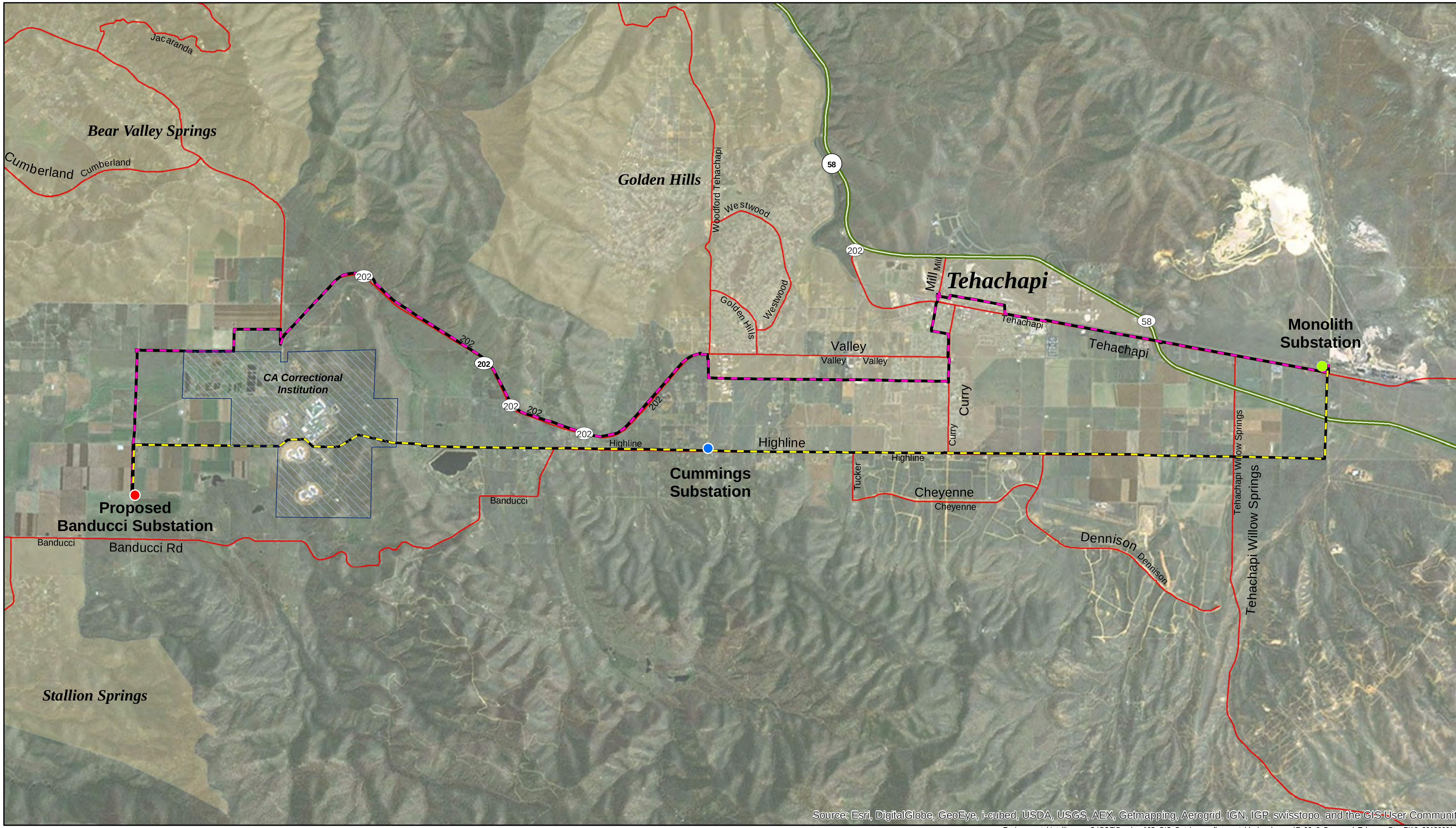

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Legend

- Proposed Banducci Substation
- Cummings Substation
- Monolith Substation
- CA Correctional Institution
- Proposed Telecommunications Route 1
- Proposed Telecommunications Route 2
- Freeway / Major Highway
- Major Road / Minor Highway

N W E S

0 0.5 1 2 Miles

Figure 3.2: Proposed Telecommunication Routes

Proposed Banducci Substation Project

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3.2 Existing System

The Proposed Project would provide the Electrical Needs Area (ENA) necessary upgrades in the ENA) that is currently being served from Cummings Substation. Figure 3.3 Existing 12 kV Distribution System, provides a schematic diagram and map of the existing system. Figure 3.4 Banducci 66 kV / 12 kV Substation Electrical Needs Area System Configuration, provides a schematic diagram that illustrates the system as it would be configured with the implementation of the Proposed Project.

3.2.1 Existing Substations

The existing Cummings Substation feeds three existing 12 kV distribution circuits. Cummings Substation has a set of three single-phase transformers that reduces voltage from 66 kV to 12 kV, with a total capacity of 24.4 MVA.

The existing Cummings Substation is interconnected to the existing 66 kV subtransmission system, with Monolith 66/12 kV Substation to the east and Correction 66/12 kV Substation, which is a customer dedicated substation, to the west. Cummings Substation currently serves the ENA's approximately 7,250 metered customers.

There is a spare single phase transformer onsite at Cummings Substation that can be energized in less than 24 hours if one of the three single phase transformers fails. However, energizing this spare transformer would not provide any additional capacity to meet the projected need.

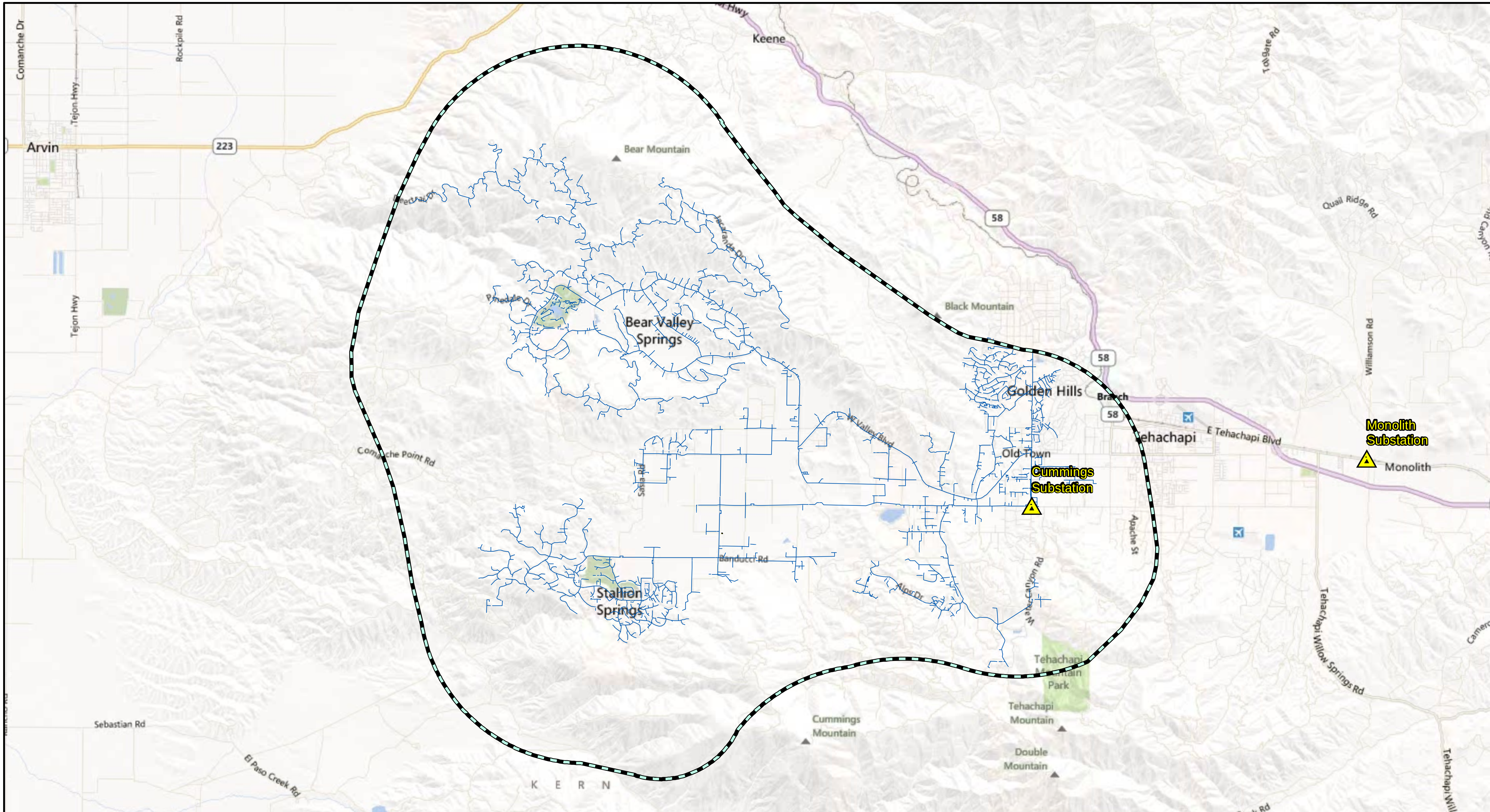
3.2.2 Existing Subtransmission Lines

The ENA is currently directly served by the Correction-Cummings-Kern River 1 66 kV Subtransmission Line and the Cummings-Monolith 66 kV Subtransmission Line. Both of these 66 kV subtransmission lines are the source lines to Cummings Substation.

3.2.3 Existing Distribution Circuits

Three existing 12 kV distribution circuits exit Cummings Substation to serve load within the ENA. Two of the existing 12 kV distribution circuits that exit Cummings Substation to serve the Bear Valley Springs and Stallion Springs communities are approximately 22 miles and 14 miles long, respectively. These circuits have very limited load transfer capability, and the lengths of the circuits significantly exceed SCE's maximum preferred distribution circuit length for urban circuits of approximately three to five miles.

The existing system is shown in Figures 3.3 and 3.4.



Legend

- Cummings Substation
- Cummings 12 kV Distribution Circuits
- Banducci Electrical Needs Area

Figure 3.3
Existing 12 kV Distribution System

-DRAFT-
PRELIMINARY LAYOUT PRIOR TO SITE SPECIFIC ENGINEERING

0 1.25 2.5 Miles

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Date: 9/04/2013
Kern County, CA.

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features. © Real Properties Survey and Mapping.

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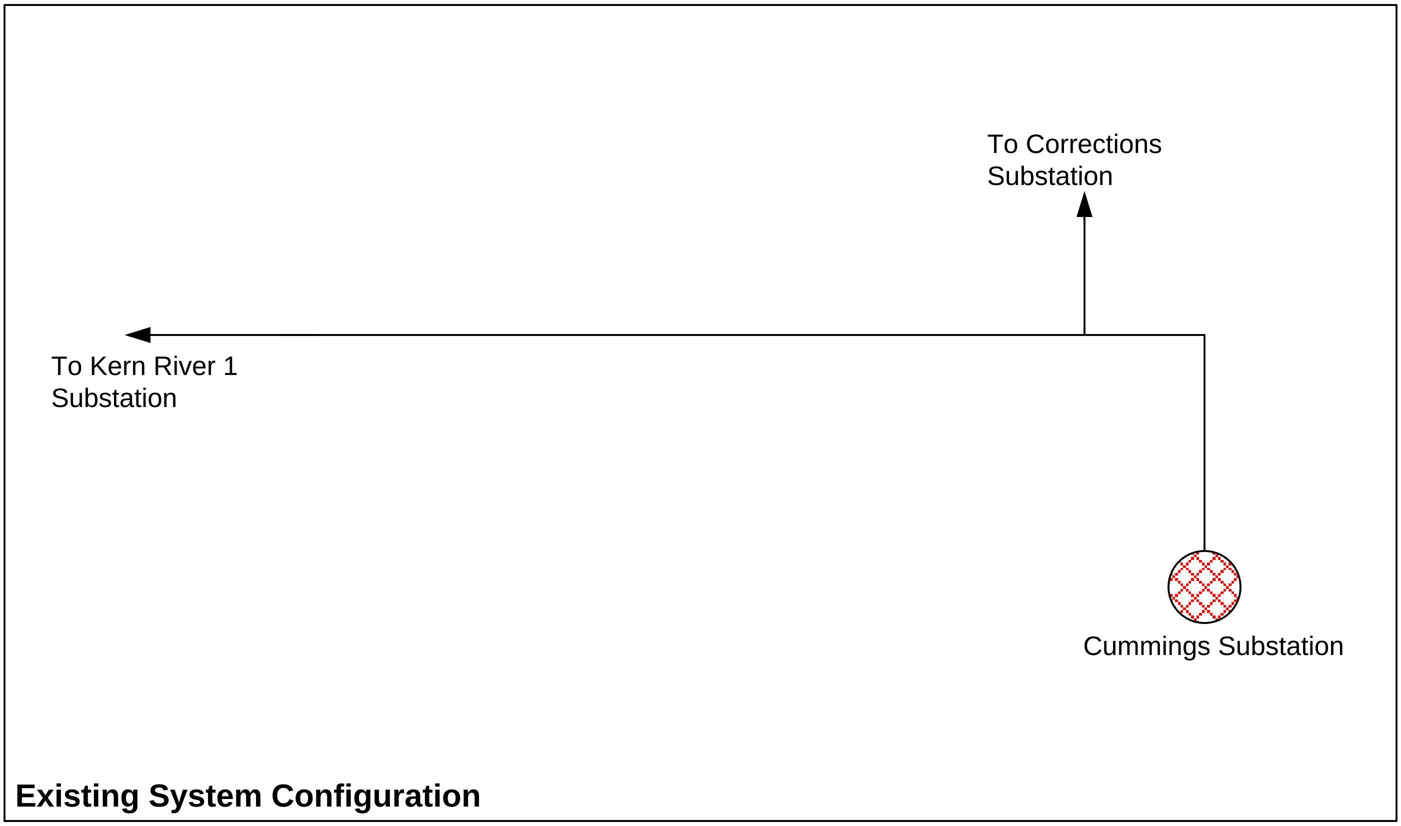

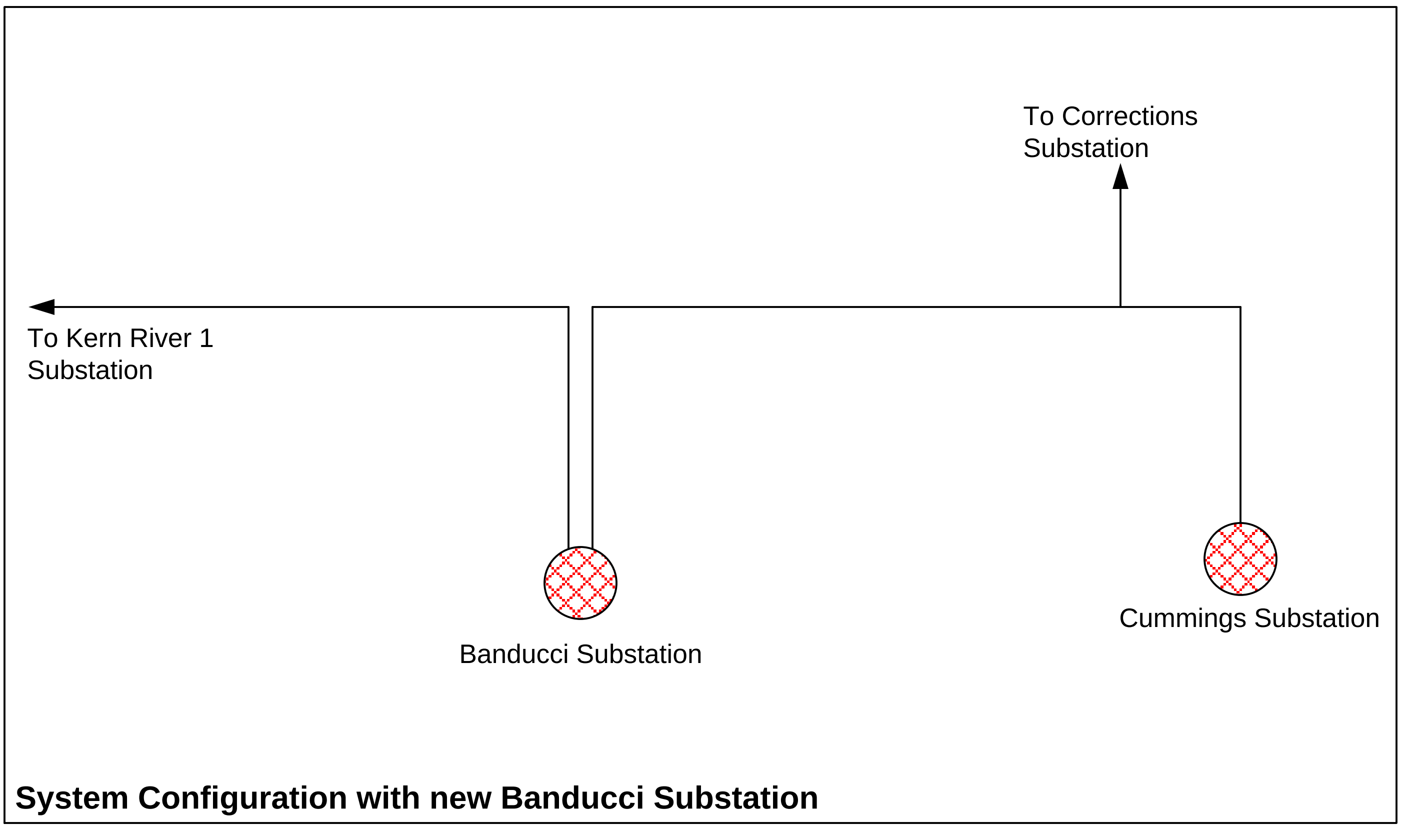

Figure 3.4: Banducci 66 kV / 12 kV Substation Electrical Needs Area System Configuration

3.3 Proposed Project Objectives

The Proposed Project Objectives are described in Chapter 2, Purpose and Need.

3.4 Proposed Project

As previously noted, the primary objective of the Proposed Project is to increase capacity in order to continue providing safe and reliable electrical service to the ENA. The Proposed Project includes a new substation and associated components, which would increase the capacity and maintain or improve reliability in the ENA.

The Proposed Project includes the following components:

1. Construction of the new Banducci 66/12 kV Substation. Banducci Substation would be an unstaffed, automated, 56 MVA, low-profile substation with a potential capacity of 112 MVA at final build out. The proposed 66/12 kV distribution substation would be located on an approximately 6.3 acre parcel in the unincorporated Cummings Valley area of Kern County.

2. Construction of two new 66 kV subtransmission line segments that would loop the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line: one that would enter and one that would exit the proposed Banducci Substation creating the new Banducci-Kern River 1 66 kV Subtransmission Line and the new Banducci-Correction-Cummings 66 kV Subtransmission Line.

3. Construction of three new underground 12 kV distribution getaways.

4. Installation of telecommunications facilities to connect the proposed Banducci Substation to SCE's existing telecommunications system.

The proposed substation could accommodate a total of 16 separate 12 kV distribution circuits.

The Proposed Project is needed to serve increased electrical demand in the ENA and would not be expected to result in significant cumulative or growth-inducing impacts, as described in Sections 4.18 and 4.19 of this PEA.

SCE proposes to construct the proposed Banducci 66/12 kV Substation to add capacity to meet forecasted electrical demands, maintain and/or improve system reliability, resolve anticipated service delivery voltage problems, and enhance operational flexibility in the unincorporated Cummings Valley area of Kern County.

3.5 Project Components

3.5.1 Subtransmission Line

The following subsections provide details regarding the infrastructure associated with the proposed 66 kV subtransmission line components of the Proposed Project.

3.5.1.1 66 kV Subtransmission Line Route Description

The proposed 66 kV subtransmission line route would entail opening the existing Corrections-Cummings-Kern River 1 66 kV Subtransmission Line on Pelliser Road south of Dale Road. Specifically, two independent source line segments would be created by looping in the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line, creating the new Banducci-Kern River 1 66 kV Subtransmission Line and the new Banducci-Correction-Cummings 66 kV Subtransmission Line. The 66 kV subtransmission line route is shown in Figure 3.5: Subtransmission Source Line Route Description.

In order to facilitate looping the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line into and out of the proposed Banducci Substation, six new tubular steel poles (TSPs), two new TSP guy stubs, two new light-weight steel (LWS) poles, and seven new wood poles would be installed.

In order to create the new Banducci-Corrections-Cummings 66 kV Subtransmission Line, SCE would install two new wood poles in the existing right-of-way (ROW) on the east side of Pelliser Road north of the proposed Banducci Substation north block wall. The northernmost new wood pole would be installed approximately 30 feet north of the existing pole it is replacing to adjust and even out the span lengths. The first wood pole north of the new Banducci Substation would be installed approximately 75 feet north of the existing wood pole it is replacing to adjust and even out the span lengths. A TSP self-supporting guy stub pole would be installed on the west side of Pelliser Road and west of this wood pole in franchise to support an approximate 15 degree angle on the wood pole. A steel stranded cable (span guy) would connect the TSP guy stub to the wood pole to support the side strain on the wood pole. The new wood poles would be installed to reconfigure the existing 66 kV subtransmission and 12 kV distribution conductors to accommodate a distribution riser. A new TSP would be installed on SCE property but outside of the wall of the new Banducci Substation. The TSP would be installed in the northwest corner of the SCE parcel. This TSP would accommodate an approximately 105 degree turn in the 66 kV subtransmission line from the existing alignment and start the loop to the rear of the new Banducci Substation. SCE would install an LWS pole approximately 200 feet east of the TSP; the proposed 66 kV subtransmission line would continue east for approximately 200 feet to the northeast corner of the proposed Banducci Substation, where another TSP would be installed to accommodate a 90 degree turn and would continue south for approximately 115 feet to another TSP where the line would make another 90 degree turn and continue west to the 66 kV substation switch rack.

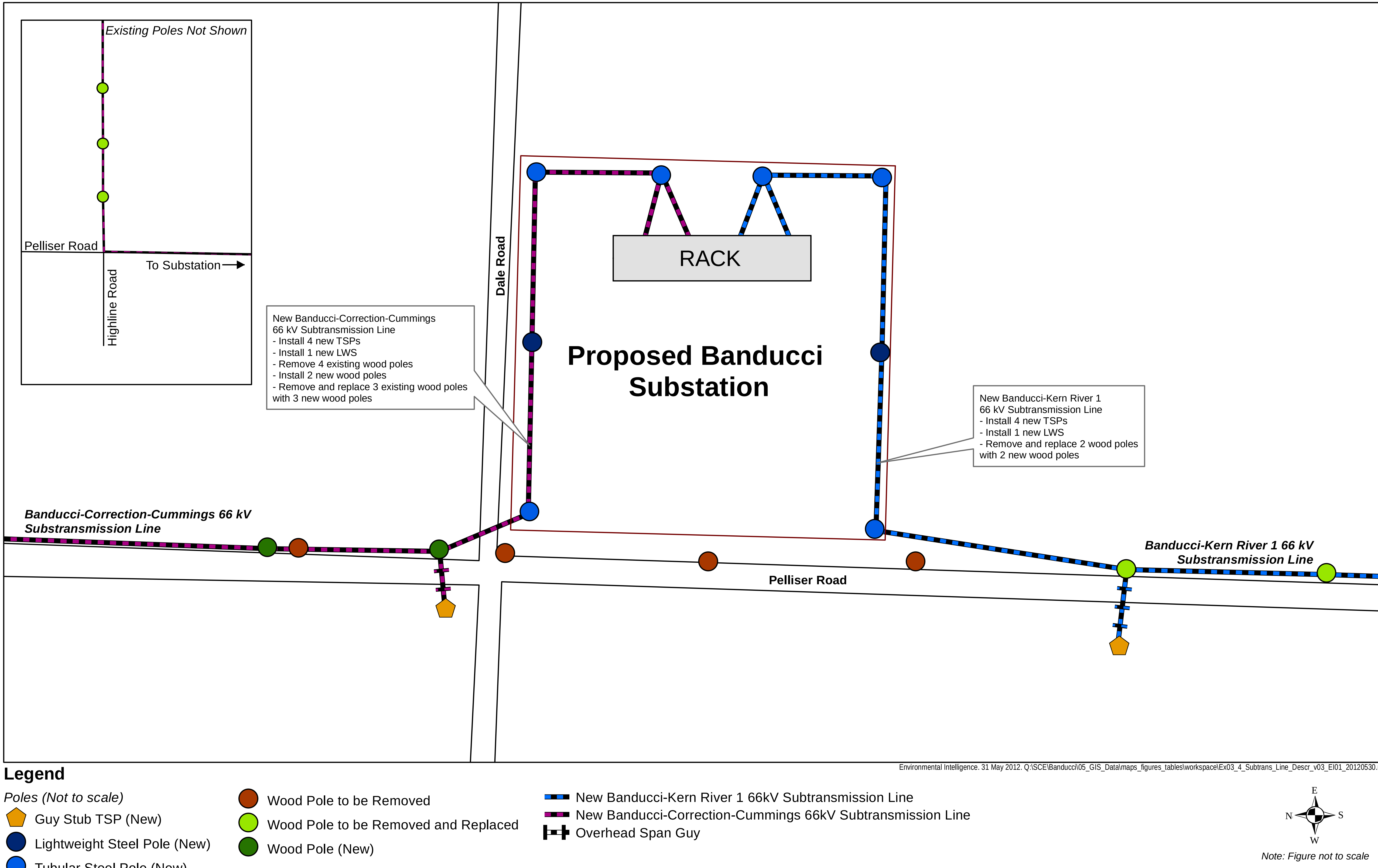

FIGURE 3.5: SUBTRANSMISSION SOURCE LINE ROUTE DESCRIPTION

PROPOSED BANDUCCI SUBSTATION PROJECT

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In order to create the proposed Banducci-Kern River 1 66 kV Subtransmission Line, SCE would install two new wood poles in the existing ROW on the east side of Pelliser Road south of the proposed Banducci Substation south block wall. The two new wood replacement poles would be installed approximately 3 feet from the existing wood poles. A TSP self-supporting guy stub pole would be installed on the west side of Pelliser Road and west of the first wood pole south of the new Banducci Substation in franchise to support an approximate 15 degree angle on the wood pole. A steel span guy would connect the TSP guy stub to the wood pole to support the side strain on the wood pole. The new wood poles would be installed to reconfigure the existing 66 kV subtransmission and 12 kV distribution conductors to accommodate a distribution riser.

SCE would then install one TSP at the southwest corner of the proposed Banducci Substation in order to accommodate an approximate 105 degree turn in the line from the existing alignment and start the loop to the rear of the new Banducci Substation. Approximately 200 feet east of the TSP, SCE would install an LWS pole, the proposed 66 kV subtransmission line would continue east for approximately 200 feet to the south east corner of the proposed Banducci Substation where another TSP would be installed to accommodate a 90 degree turn and continue north approximately 200 feet north to another TSP where the line would make another 90 degree turn and continue west to the 66 kV substation switchrack.

SCE would also replace three wood poles on the south side of Highline Road, east of Pelliser Road. The three new poles would be installed, one of which would accommodate a new 12 kV distribution riser and would replace the existing second, third, and fourth poles east of Pelliser Road.

3.5.2 Poles/Towers

The Proposed Project does not include any towers as a project component. In total, two new LWS poles, seven new wood poles, and eight new TSPs would be installed to accommodate the two new 66 kV subtransmission source line segments that would serve the proposed Banducci Substation.

3.5.2.1 Subtransmission Description

LWS poles would be installed with conductor and polymer insulators. Both of the LWS poles would be constructed with horizontal polymer post type insulators to attach the 66 kV subtransmission conductor. Four of the wood poles would be installed with horizontal post type insulators to attach the 66 kV subtransmission conductor. The other three wood poles would be installed with wood cross arms and polymer suspension insulators to attach the 66 kV subtransmission conductor. Six of the TSPs would all be dead-end structures to support the approximate 90 to 105 degree angles in the 66 kV subtransmission line. The insulators would be polymer dead-end insulators. The other two TSPs would be guy stubs to support the angle of the conductor on the wood poles.

The approximate dimensions of the proposed structure types are shown in Figure 3.6: Subtransmission Structures, and summarized in Table 3.1: Typical Subtransmission Structure Dimensions.

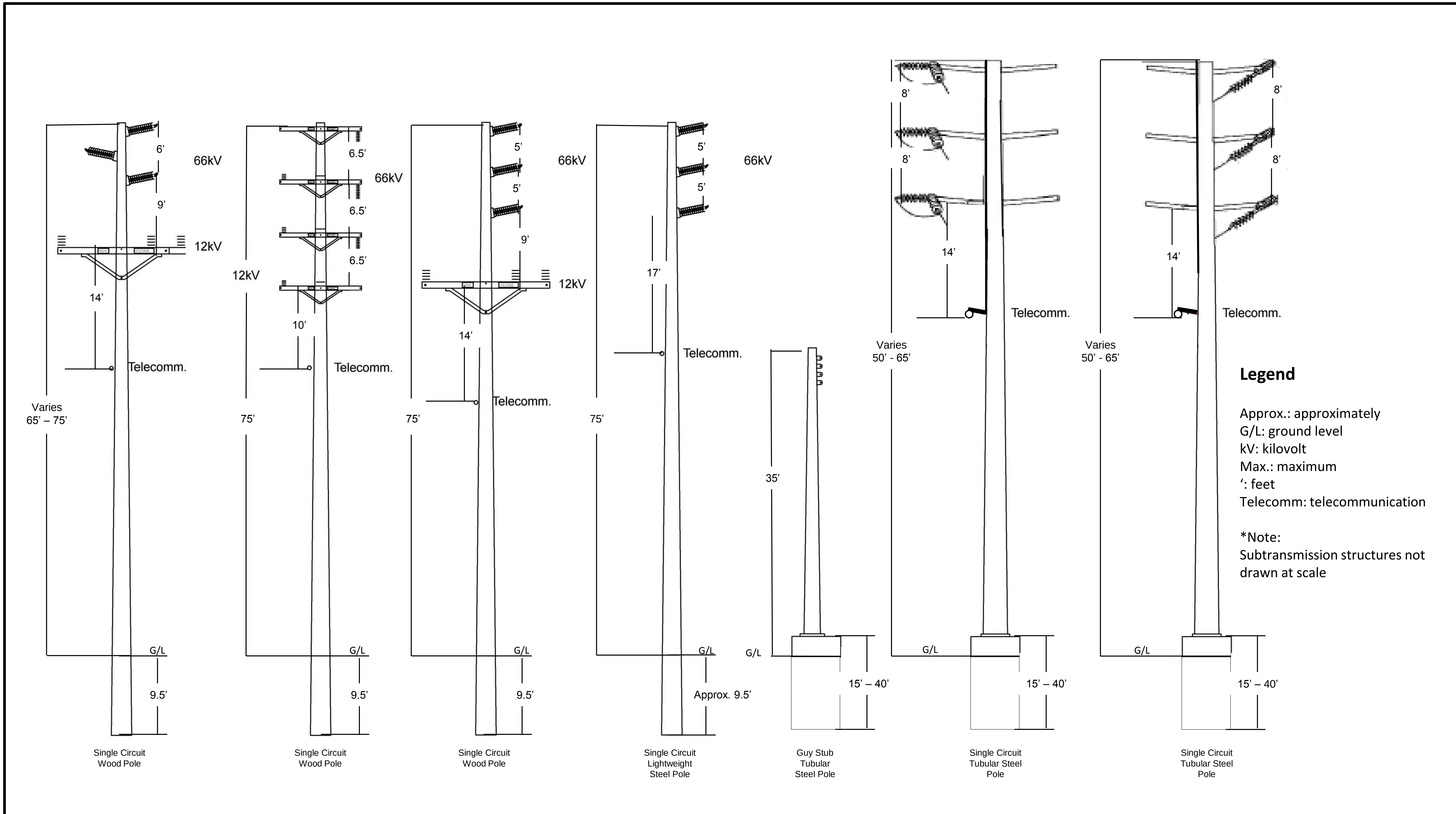

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Figure 3.6: Subtransmission Structures

Proposed Banducci Substation Project

All 66 kV subtransmission facilities would be designed to be avian-safe in accordance with the *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (Avian Power Line Interaction Committee, 2006).[1] All 66 kV subtransmission facilities would be evaluated for potential collision risk and, where determined to be high risk, lines would be marked with collision reduction devices in accordance with *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994* (Avian Power Line Interaction Committee, 1994).

The two new LWS poles would be direct buried to a depth approximately 10 feet below the ground surface and extend approximately 65 to 75 feet above ground level. The diameter of LWS poles would typically be 2 to 3 feet at ground level, tapering to approximately 10 to 12 inches in diameter at the top. The LWS poles would be dull galvanized gray in color.

The seven new wood poles would be direct buried to a depth of approximately 10 feet below the ground surface and extend approximately 65 to 75 feet above ground level. The diameter of the wood poles would typically be 2 to 3 feet at ground level tapering to approximately 10 to 12 inches in diameter at the top. For the Proposed Project, a total of eight TSPs would be used. Four of the proposed TSPs would be located inside the proposed Banducci Substation. Two of the TSPs would be approximately 65 feet in height and would bolt atop a concrete footing that would be visible approximately 24 inches above ground level. One of these TSPs would be located in the northeast corner of the proposed Banducci Substation to accommodate a 90 degree turn in the proposed Banducci-Corrections-Cummings 66 kV Subtransmission Line. The other TSP would be located in the southeast corner of the proposed Banducci Substation to accommodate a 90 degree turn in the proposed Banducci-Kern River 1 66 kV Subtransmission Line. The other two TSPs located inside the proposed Banducci Substation would be approximately 55 feet in height and would bolt atop a concrete footing that would be visible approximately 24 inches above ground level. One of these TSPs would accommodate a 90

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[1] *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* published by the Edison Electric Institute and the Avian Power Line Interaction Committee in collaboration with the Raptor Research Foundation. This document can be found at http://www.aplic.org.

degree turn in the proposed Banducci-Corrections-Cummings 66 kV Subtransmission Line to attach to the 66 kV switchrack. The other TSP would accommodate a 90 degree turn in the proposed Banducci-Kern River 1 66 kV Subtransmission Line to attach to the 66 kV switchrack.

Two more TSPs would be located outside the proposed substation perimeter wall, but still on SCE property. Both of these TSPs would accommodate approximately 105 degree turns in the 66 kV subtransmission line segments and would be approximately 65 feet in height and would bolt atop a concrete footing that would be visible approximately 24 inches above ground level. One of these TSPs would be located in the northwest corner of the property to accommodate the proposed Banducci-Corrections-Cummings 66 kV Subtransmission Line. This TSP would tie the existing 66 kV subtransmission line to the new loop into the proposed Banducci Substation. The other TSP would be located in the southwest corner of the property to accommodate the proposed Banducci-Kern River 1 66 kV Subtransmission Line. This TSP would tie the existing 66 kV subtransmission line to the new loop into the proposed Banducci Substation.

The last two TSPs would be used for self-supporting guy stubs and would be approximately 35 feet in height and would bolt atop a concrete footing that would be visible approximately 24 inches above ground level. Both of these guy stub TSPs would support an approximate 15 degree angle in the existing circuitry and be located on the west side of Pelliser Road in the franchise position. One TSP guy stub would support the proposed Banducci-Corrections-Cummings 66 kV Subtransmission Line and the other TSP guy stub would support the proposed Banducci-Kern River 1 66 kV Subtransmission Line.

Inside the perimeter wall of the proposed Banducci Substation, two new LWS poles would be installed. Both of the LWS poles would extend approximately 65 feet above ground level and would be buried approximately 10 feet below ground level. One of the LWS poles would be located approximately 200 feet west of the east perimeter wall and 15 feet south of the north perimeter wall and would support the proposed Banducci-Corrections-Cummings 66 kV Subtransmission Line. The other LWS pole would be located approximately 202 feet west of the eastern perimeter wall and 15 feet north of the southern perimeter wall and would support the proposed Banducci-Kern River 1 66 kV Subtransmission Line.

The eight new TSP structures, including arm attachments, would be constructed entirely of steel and would be dull galvanized gray in color. The diameter of the tapered TSPs would range from approximately 18 to 36 inches and the TSPs would be bolted to concrete foundations that would be approximately 3 to 10 feet in diameter. The foundations would extend underground approximately 15 to 40 feet deep with approximately 18 to 24 inches of concrete visible above ground. Each TSP foundation would require approximately 4 to 120 cubic yards of concrete (see Table 3.1: Typical Subtransmission Structure Dimensions).

Table 3.1 Typical Subtransmission Structure Dimensions

Pole Type	Approximate Diameter	Approximate Height Above Ground	Maximum Auger Hole Depth	Maximum Auger Diameter
Light Weight Steel (LWS) Pole	Top 10 to 12 Inches Bottom 24 to 36 Inches	65 to 75 Feet	10 Feet	30 Inches
Tubular Steel Pole (TSP)	Top 18 Inches Bottom 36 Inches	35 to 65 Feet	NA	NA
TSP Concrete Foundation	3 to 10 Feet	18 to 24 Inches	40 Feet	10 Feet

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

Upon completion of the installation of the proposed TSPs, wood poles, and LWS poles outside of the proposed substation, the existing overhead distribution conductors and third-party utilities that exist at that time would be transferred to the new structures, or existing structures would be relinquished and utilities on those structures would remain in place.

3.5.2.2 Telecommunications Description

Electrical equipment at the proposed Banducci Substation would be monitored through SCE's existing telecommunications system. Telecommunications infrastructure would be added to connect the proposed Banducci Substation to SCE's telecommunications system and would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Banducci Substation and associated facilities.

New telecommunications equipment would be installed at the proposed Banducci Substation within the Mechanical and Electrical Equipment Room (MEER).

New telecommunications equipment would also be installed within the existing MEER at Monolith Substation. There would also be a new communications cabinet installed at the existing Cummings Substation within the existing substation fence.

There are two proposed fiber optic telecommunications cables as part of the Proposed Project. One would connect the proposed Banducci Substation to the existing Cummings Substation and then continue on to the existing Monolith Substation. A second fiber optic telecommunications cable would connect the proposed Banducci Substation to the existing Monolith Substation.

The two proposed fiber optic telecommunications cable routes are described in the following paragraphs. Where practical, the fiber optic telecommunications cable would be collocated on the existing infrastructure.

One fiber optic telecommunications cable route (Proposed Telecommunications Route 1) would connect the proposed Banducci Substation to the existing Monolith Substation by way of the existing Cummings Substation, as described below:

- The proposed fiber optic telecommunications cable would begin by exiting the proposed Banducci Substation to the west and would then extend north in approximately 2,800 feet of new conduit to Highline Road.
- The fiber optic telecommunications cable would continue east on Highline Road in approximately 450 feet of new conduit and would then transition to an overhead position on an existing pole.
- The fiber optic telecommunications cable would continue east in an overhead position on Highline Road for approximately 6 miles where it would transition into an underground position from an existing pole.
- The fiber optic telecommunications cable would continue east in approximately 270 feet of new conduit into the existing Cummings Substation.

- The fiber optic telecommunications cable would then exit the existing Cummings Substation to the east in 240 feet of new conduit, where it would then transition to an overhead position on an existing pole.
- The fiber optic telecommunications cable would continue east in an overhead position for approximately 6.5 miles to Jameson Street.
- The fiber optic telecommunications cable would then continue north in an overhead position for approximately 1 mile to an existing pole outside the existing Monolith Substation, where the fiber optic telecommunications cable would transition to an underground position.
- The fiber optic telecommunications cable would continue west in approximately 160 feet of new conduit into the existing Monolith Substation.

The length of this proposed fiber optic telecommunications cable route would be approximately 14.5 miles.

The second fiber optic telecommunications cable route (Proposed Telecommunications Route 2) would connect the proposed Banducci Substation directly to the existing Monolith Substation, as described below:

- The proposed fiber optic telecommunications cable would begin by exiting the proposed Banducci Substation to the west and turn north in approximately 290 feet of new conduit and would then transition to an overhead position on a new wood riser pole on Pelliser Road.
- The fiber optic telecommunications cable would continue north in an overhead position on Pelliser Road for approximately 1.5 miles.
- The fiber optic telecommunications cable would then continue east in the overhead position on Giraudo Road for approximately 2 miles to West Valley Boulevard.

- On West Valley Boulevard the fiber optic telecommunications cable would continue east in an overhead position for approximately 6 miles to Woodford-Tehachapi Road, where the fiber optic telecommunications cable would transition to an underground position on an existing pole.
- The fiber optic telecommunications cable would continue south on Woodford-Tehachapi Road in an underground position in approximately 810 feet of proposed conduit to an existing pole, where it would transition to an overhead position.
- The fiber optic telecommunications cable would then continue south in an overhead position for approximately 1,000 feet to Cherry Lane.
- The fiber optic telecommunications cable would then continue east in an overhead position for approximately 2.5 miles to South Curry Street.
- The fiber optic telecommunications cable would then continue north on South Curry Street, west on West C Street, and north on South Mill Street in an overhead position for approximately 1 mile to an existing pole where the fiber optic telecommunications cable would transition to an underground position.
- The fiber optic telecommunications cable would then continue east on West H Street in an underground position in existing conduit for approximately 1,000 feet, where it would transition to an overhead position on an existing pole.
- The fiber optic telecommunications cable would then continue east along Tehachapi Boulevard in the overhead position for approximately 1 mile to Dennison Road, where it would transition to an underground position on an existing pole.
- The fiber optic telecommunications cable would continue east in a proposed conduit on Tehachapi Boulevard for approximately 240 feet to an existing vault.

- The fiber optic telecommunications cable would then continue east on Tehachapi Boulevard in an underground position for approximately 3 miles, where it would enter Monolith Substation through an existing conduit.

The length of this proposed fiber optic telecommunications cable route would be approximately 17.5 miles.

The proposed fiber optic telecommunications cable routes are shown in Figure 3.2: Proposed Telecommunication Routes.

Approximately 39 of the 751 existing wood poles on the proposed telecommunication routes would be replaced to support the Proposed Project[2]. Approximately 39 wood poles will be replaced along Telecommunications Route 2. The new poles are similar in size to the existing poles. The new poles would be direct buried to a depth of approximately 6 to 9 feet below the ground surface, extending approximately 38 to 50 feet above the ground. The diameter of the wood poles would be approximately 12 to 18 inches at ground level and would taper to the top of the pole.

Underground telecommunications facilities to be installed for the Proposed Project include approximately seven new manholes and approximately 5,200 feet of new underground conduit. The locations and dimensions of the manholes and conduit are summarized in Table 3.2: New Telecommunications Facilities.

All work areas are anticipated to be accessible by vehicle or foot.

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[2] In the interest of conservatively estimating those impacts dependent on pole count and due to the preliminary status of engineering, SCE has assumed 39 poles (representing a 15% contingency) would require remediation as part of the Banducci Project. However, at this time SCE has only identified 34 poles requiring remediation. These 34 poles are identified in the updated GIS information provided in response to CPUC Data Request #1, as well as the updated strip map accompanying this amended PEA.

Table 3.2 New Telecommunications Facilities

New Telecommunications Manholes		
Location	**External Dimensions (L x W x D in Feet)**	**Description**
Banducci Substation	5 x 5 x 8	Outside northwest corner of substation wall
	5 x 5 x 8	Outside northwest corner of substation wall
Pelliser Road	5 x 5 x 8	At Highline Road
Pelliser Road	5 x 5 x 8	1400 feet south of Highline Road
Cummings Substation	5 x 5 x 8	Outside southeast corner of substation fence
	5 x 5 x 8	Outside southwest corner of substation fence
W Valley Boulevard	5 x 5 x 8	250 feet west of Woodford-Tehachapi Road
New Telecommunications Conduit		
Location	**Two 5-Inch Conduits Approximate Length (Feet)**	**Description**
Exiting Banducci Substation	290	From Banducci Substation, north to a new LWS pole on Pelliser Road
	3,150	From Banducci Substation north along Pelliser Road then east on Highline Road to an existing pole
Entering Cummings Substation	270	From an existing pole on Highline Road, east along Highline Road into Cummings Substation
Exiting Cummings Substation	240	From Cummings Substation east along Highline Road to an existing pole
Entering Monolith Substation	160	From an existing pole on Williamson Road, west into Monolith Substation
Woodford-Tehachapi Road	810	From an existing pole on Woodford – Tehachapi Road at West Valley Boulevard, south to an existing pole on Woodford Tehachapi Road
Tehachapi Boulevard	240	From an existing pole on Dennison Road at Tehachapi Boulevard, east to an existing vault on Tehachapi Boulevard

Key: L x W x D = length by width by depth

3.5.3 Conductor/Cable

3.5.3.1 Above-Ground Installation

66 kV Subtransmission

The above-ground construction of the new Banducci-Kern River 1 66 kV subtransmission line would consist of replacing two single-circuit wood poles south of the proposed Banducci Substation. These poles would have one 66 kV circuit, one 12 kV circuit, and one Telecommunication circuit attached. The wood pole closest to the TSP at the southwest corner of the proposed Banducci Substation would be a riser pole for the 12 kV and the

Telecommunication circuit. Therefore, the span between the first wood pole to the TSP would consist of only one 66 kV circuit; this 66 kV single circuit would continue on new TSPs and LWS poles around to the rear (east side) of the proposed Banducci Substation. The existing 4/0 stranded copper conductor along Pelliser Road to the immediate west of the proposed Banducci Substation site would be removed and portions transferred to the two new wood poles and to the TSP at the southwest corner of the proposed Banducci Substation. From this TSP throughout the loop-in to the rear of the substation would be new 954 stranded aluminum conductor (SAC). Conductors on the 66 kV circuit would be in a vertical configuration on all poles with conductor spacing varying from 5 to 8 feet (see pole sketches). The lowest conductor on the 66 kV circuit would vary from approximately 49 to 55 feet, with exception of the first TSP from the rack; on this structure, the lowest conductor would be approximately 41 feet. Span lengths vary from approximately 183 to 223 feet with the exception of the span attaching to the substation rack, which would be approximately 75 feet (see Figure 3.1).

The aboveground construction of the new Banducci-Correction-Cummings 66 kV subtransmission line (north circuit) would consist of replacing two single-circuit wood poles north of the proposed Banducci Substation. These poles would have one 66 kV circuit, one 12 kV circuit, and one Telecommunication circuit attached. The wood pole closest to the TSP at the northwest corner of the proposed Banducci Substation would be a riser pole for the 12 kV and the Telecommunication circuit. Therefore, the span between the first wood pole to the TSP would consist of only one 66 kV circuit, and this 66 kV single circuit would continue around to the rear of the proposed Banducci Substation. The existing 4/0 stranded copper conductor would be transferred to the two new wood poles and to the TSP at the northwest corner of the Proposed Banducci Substation. From this TSP, throughout the loop into the rear of the substation would be new 954 SAC. Conductors on the 66 kV circuit would be in a vertical configuration on all poles with conductor spacing varying from 5 to 8 feet (see pole sketches). The lowest conductor on the 66 kV circuit would vary from approximately 49 to 55 feet with exception of the first TSP from the rack; on this structure, the lowest conductor would be approximately 41 feet. Span lengths vary from approximately 115 to 184 feet with the exception of the span attaching to the substation rack, which would be approximately 75 feet (see Figure 3.1).

Two new TSP guy stubs would be installed on the west side of Pelliser Road: one would be installed west of the first wood pole north of the proposed substation, and the other would be installed west of the first pole south of the proposed substation. Both of the TSPs would be approximately 35 feet tall with two span guys crossing Pelliser Road and attaching to the wood poles east of these structures. The top span guy on both TSPs would attach at approximately 36 feet on the TSP and rise to attach at approximately 64 feet on the wood pole. The second span guy on both TSPs would attach at approximately 35 feet on the TSP and rise to attach at approximately 54 feet on the wood pole. Both span guys would be 9/32 inch steel stranded wire.

At the corner of Highline Road and Pelliser Road, the existing wood pole where the line turns east would remain, but the second, third, and fourth wood poles to the east of this structure would be replaced to accommodate a new 12 kV riser. All three new wood poles would have one 66 kV circuit, one 12 kV circuit, and one telecommunication circuit attached. The poles would vary in height from approximately 60 to 65 feet above ground level. The 66 kV circuit on the second and third wood poles from the existing wood pole at the intersection of Highline Road and Pelliser Road would be in a triangle configuration on horizontal insulators with the lowest conductor being attached at approximately 60 feet. The 66 kV circuit on the third pole would be in a vertical configuration with wood cross arms and suspension insulators. This pole would be approximately 60 feet above ground level and the lowest conductor would be attached at approximately 44 feet. The existing 4/0 stranded copper conductor would be transferred from the existing wood poles to the new wood poles. Span lengths vary from approximately 195 to 225 feet.

Telecommunications

Installation of the telecommunications system would include new or upgraded telecommunications equipment that would be installed within the proposed Banducci Substation, existing Cummings Substation, and existing Monolith Substation. Approximately 28 miles of overhead fiber optic telecommunications cable would be installed on 751 existing poles, 39 of which are scheduled to be replaced prior to attaching new fiber optic telecommunications cable to them. Approximately 4 miles of underground fiber optic telecommunications cable would be installed in 17 existing vaults and seven new manholes. Overhead and underground fiber optic telecommunications cables would be installed on or in new and existing structures.

Overhead fiber optic cable would be installed on overhead structures using a bucket truck and in the same manner as described in Section 3.7.2.1.

Telecommunications Fiber Route 1

Beginning 450 feet east of Pelliser Road the fiber optic telecommunications cable would transition to an overhead position on an existing pole and then continue east on Highline Road for approximately 6 miles, where it would transition into an underground position from an existing pole west of Cummings Substation.

From an existing pole east of Cummings Substation, the fiber optic telecommunications cable would then transition to an overhead position on an existing pole and continue east for approximately 6.5 miles to Jameson Street.

The fiber optic telecommunications cable would then continue north in an overhead position for approximately 1 mile to an existing pole outside the existing Monolith Substation, where the fiber optic telecommunications cable would transition to an underground position.

Telecommunications Fiber Route 2

Beginning approximately 290 feet north of proposed Banducci Substation the fiber optic telecommunications cable would transition to an overhead position on a new wood riser pole and continue north on Pelliser Road for approximately 1.5 miles.

The fiber optic telecommunications cable would then continue east in the overhead position on Giraudo Road for approximately 2 miles to West Valley Boulevard.

On West Valley Boulevard the fiber optic telecommunications cable would continue east in an overhead position for approximately 6 miles to Woodford-Tehachapi Road, where the fiber optic telecommunications cable would transition to an underground position on an existing pole.

Beginning approximately 375 feet south of West Valley Boulevard, the fiber optic telecommunications cable would transition to an overhead position on an existing pole and continue south on Woodford-Tehachapi Road for approximately 1,000 feet to Cherry Lane.

The fiber optic telecommunications cable would then continue east in an overhead position for approximately 2.5 miles to South Curry Street.

The fiber optic telecommunications cable would then continue north on South Curry Street, west on West C Street, and north on South Mill Street in an overhead position for approximately 1 mile to an existing pole where the fiber optic telecommunications cable would transition to an underground position.

Beginning approximately 325 feet west of North Curry Street, the fiber optic telecommunications cable would then transition to an overhead position and continue east along Tehachapi Boulevard in the overhead position for approximately 1 mile to Dennison Road, where the cable would transition to an underground position on an existing pole.

3.5.3.2 Below-Ground Installation

3.5.3.2.1 Distribution Getaways

The Proposed Project would include the construction of three new underground distribution getaways. The getaways would consist of 12 kV distribution cable, conduits, and vaults. Two vaults (see Figure 3.7: Typical Distribution Vault) would be located outside of the Banducci Substation wall on SCE property. The first 12 kV distribution cable, fiber optic telecommunications cable, and duct bank (see Figure 3.8: Typical Duct Bank) would exit the proposed Banducci Substation to the northwest and extend approximately 150 feet to a location on the proposed Banducci Substation parcel where a new distribution vault and telecommunications manhole would be installed. A new 12 kV underground switch would be installed within the vault. The first getaway would then be constructed approximately 200 feet north along Pelliser Road from the new vault to a new wood riser pole where a 12 kV overhead switch would be installed. The second getaway cable would be installed in the second getaway duct bank and would exit the proposed Banducci Substation enclosure to the southwest and extend for approximately 150 feet to a location on the proposed Banducci Substation parcel where a second new distribution vault and telecommunications manhole would be installed. The second distribution getaway would be constructed along Pelliser Road south from the new second vault approximately 200 feet to a new wood riser pole with a 12 kV overhead switch. The third distribution getaway cable would be installed in the same duct bank as the first up to the new northern vault. New fiber optic telecommunications cable and conduit exiting the MEER would join the 12 kV distribution cable and duct bank would then continue underground and be constructed north for approximately 2,800 feet from a point in the vicinity of the new northern vault to the corner of Highline Road and Pelliser Road. From there, the third duct bank, 12 kV distribution cable, and fiber optic telecommunications cable would extend east approximately 450 feet and would then rise on a to-be-replaced existing wood pole with a new 12 kV overhead switch. Approximately three additional new distribution vaults and three new telecommunications manholes would need to be installed along the route for pulling and splicing purposes.

In addition, a fourth underground duct bank with 12 kV distribution cable would be installed on the proposed Banducci Substation parcel or in franchise between the new northern and southern vaults located on Banducci Substation property along Pelliser Road, outside of the western wall, for a distance of approximately 375 feet. A fifth underground duct bank and 12 kV distribution cable approximately 225 feet in length would be installed from the northern vault on the Banducci Substation property west along Dale Road to an existing wood pole where a new riser and 12 kV overhead switch would be installed.

Distribution cable would be placed in the underground conduit system for ultimate connection to the existing electrical distribution system. Initial construction would entail constructing three new 12 kV distribution circuits, and at ultimate build-out, the proposed substation could accommodate a total of 16 separate 12 kV distribution circuits. The additional electrical distribution circuits would be subsequently constructed from the proposed Banducci Substation on an as-needed basis to serve electrical demand. The exact location and routing of each of these proposed 12 kV distribution circuits have yet to be determined.

The existing 12 kV regulators and associated distribution facilities located approximately 225 feet south of the intersection of Pelliser Road and Highline Road would be removed.

Telecommunications

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

New underground conduit and structures would typically be installed with a backhoe. The trench would be excavated to approximately 12 to 18 inches wide and a minimum of approximately 36 inches deep. Polyvinyl chloride (PVC) conduit would be placed in the trench and covered with approximately 3 inches of concrete slurry, then backfilled and compacted. For manholes and pull boxes, a hole would be excavated approximately 8 to 9 feet deep, 7 to 8 feet long, and 7 to 8 feet wide. The manhole or pull box would be lowered into place, connected to the conduits, and backfilled with concrete slurry.

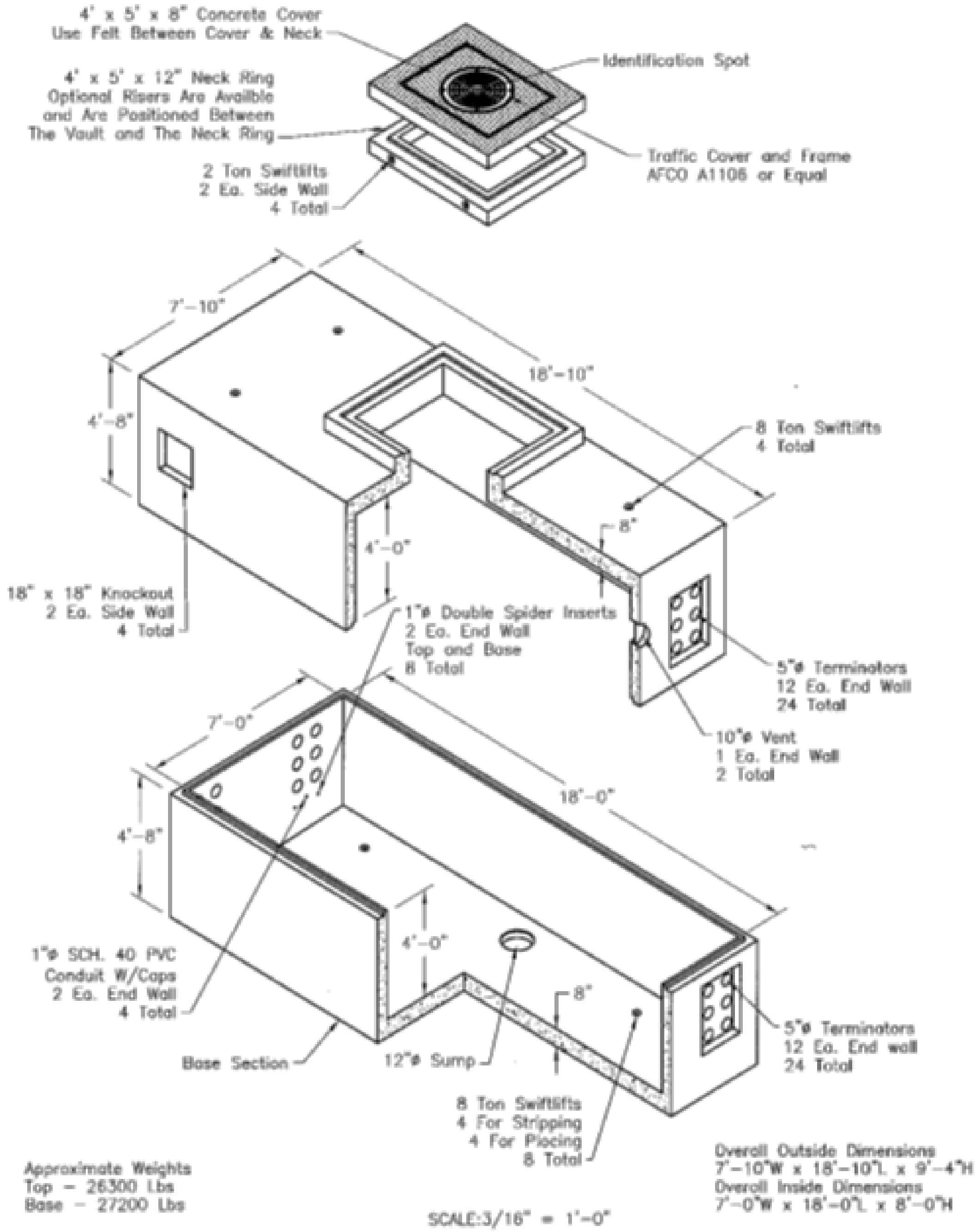

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Figure 3.7: Typical Distribution Vault

Proposed Banducci Substation Project

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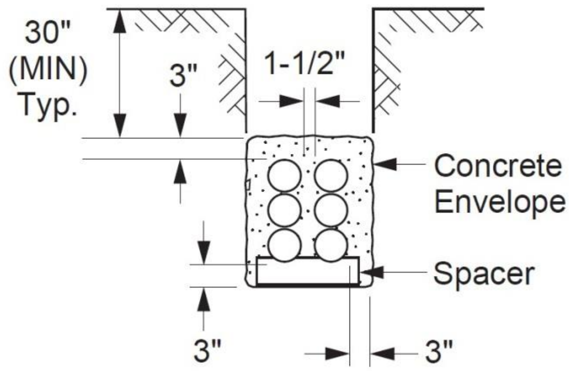

Full Encasement
More than 4 conduits
(base spacer required)

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Telecommunications Fiber Route 1

The proposed telecommunications cable would be installed in new conduit that would be collocated inside the underground duct bank (see Figure 3.8). The duct banks would extend past the substation perimeter and terminate at two new telecommunications underground structures located outside the substation wall on SCE property. These two underground structures would house telecommunications infrastructure only. Although collocated within the same duct bank as distribution cable, the conduit used for telecommunications cable would break away from the distribution duct banks and terminate in the telecommunications underground structures.

At the existing Cummings Substation, the proposed telecommunications cable would be installed in new conduit. The conduit would exit Cummings Substation at two locations along the west and east perimeter of the substation. The two conduits would travel south along the perimeter of the substation and terminate in two telecommunications underground structures or manholes, one toward the west and the other toward the east. From the western manhole, conduit would extend to a riser pole located to the west. Similarly, from the eastern manhole, conduit would extend to a riser pole toward the east. Telecommunications cable would be installed in these conduits; the cable would run in the conduit from Cummings Substation due east and finally connect with overhead telecommunications cable on two riser poles located toward the east and west of Cummings Substation, as previously described.

In addition to the conduit installed from Cummings Substation to the two riser poles (through the two manholes), approximately 420 feet new conduit would be installed between the eastern and western manholes to accommodate the main communications cable that would be tapped off to enter Cummings Substation.

At Monolith Substation, telecommunications cable would enter the facility utilizing existing underground infrastructure.

Telecommunications Fiber Route 2

The proposed telecommunications cable would be installed in new conduit that would be collocated inside the underground duct bank (see Figure 3.8). Outside the perimeter of the proposed Banducci Substation, the telecommunications conduit would break away from the distribution duct bank and transition toward the control trench.

A new telecommunications conduit approximately 809 feet in length and a new underground structure would be constructed at the intersection of West Valley Boulevard and Woodford-Tehachapi Road. The conduit would run from a riser pole on the north side of West Valley Boulevard approximately 300 feet west of Woodford-Tehachapi Road to a riser pole located approximately 375 feet south of West Valley Boulevard on the east side of Woodford-Tehachapi Road.

At a pole on the west side of North Mill Street, approximately 340 feet north of the railroad tracks, the fiber-optic cable would transition to underground and would be installed in existing underground infrastructure and terminate on a riser pole approximately 200 feet north of West H Street and approximately 800 feet west of North Green Street.

A new telecommunications conduit 241 feet in length would be constructed at the intersection of East Tehachapi Boulevard and Dennison Road. The conduit would run from a riser pole approximately 100 feet south of East Tehachapi Boulevard on the east side of Dennison Road to an underground structure located on the north side of East Tehachapi Boulevard, approximately 100 feet east of Dennison Road. The fiber cable would continue east using existing underground infrastructure and terminate inside the communication room at Monolith Substation.

3.5.4 Substations

The proposed Banducci Substation would be a new 66/12 kV unstaffed, automated, 56 MVA low-profile substation. The dimensions of the walled substation would be approximately 440 feet by 326 feet. The substation capacity would have the potential to expand to 112 MVA as necessary.

The enclosed substation footprint would encompass approximately 3.3 acres of an approximately 6.3 acre parcel located in the unincorporated Cummings Valley area of Kern County. The proposed Banducci Substation site would be located at the southeast corner of Pelliser Road and unimproved Dale Road.

SCE considers the California Building Code and the IEEE 693, Recommended Practices for Seismic Design of Substations, when designing substation structures and equipment.

The proposed Banducci Substation components are described below. Figure 3.1: Proposed Banducci Substation Layout and Plan shows the dimensions of the substation parcel and the placement and orientation of the major components that would be included in the construction of the proposed Banducci Substation.

3.5.4.1 66 kV Switchrack

The proposed 66 kV low-profile steel switchrack would be approximately 25 feet high, 82 feet wide, and 186 feet long and would have an operating and transfer bus. The switchrack would consist of eight 22-foot-wide positions:

- One switchrack position would be used to terminate the newly created Banducci-Correction-Cummings 66 kV Subtransmission Line.
- One switchrack position would be used to terminate the newly created Banducci-Kern River 1 66 kV Subtransmission Line.
- Two switchrack positions would be used to terminate the 66/12 kV transformer banks (Bank No. 1 and Bank No. 2).
- One switchrack position would be used for the 66 kV bus tie position.
- Three switchrack positions would remain vacant for future needs.

The operating and transfer buses would each be 186 feet long and would consist of two 2,156 thousand circular mils (kcmils) aluminum conductor steel reinforced (ACSR) conductors for each of the three electrical phases.

The two 66 kV subtransmission line positions and the two 66 kV transformer bank positions would each be equipped with a circuit breaker and three group-operated horizontal mount disconnect switches. Surge arresters and 66 kV potential transformers (PTs) would be installed on the line positions only. The 66 kV bus tie position would be equipped with a circuit breaker and two group-operated horizontal mount disconnect switches. Three 66 kV bus PTs would be connected to the operating bus through a three-phase group-operated disconnect switch.

3.5.4.2 66/12 kV Transformers

Banducci Substation would be a low-profile substation with a potential capacity of 112 MVA at final build-out. Initial transformation would consist of two 28 MVA, 66/12 kV load tap changing (LTC) transformers with adjacent group-operated disconnect switches on the high voltage and low voltage side, surge arresters, and neutral current transformers. Two 12 kV underground power cables would connect the transformers to the 12 kV switchrack positions via two power cable trenches. The transformer equipment area dimensions would be approximately 25 feet high, 113 feet long, and 42 feet wide. Based on SCE's current forecast for 2012–2021 peak demand, SCE does not reasonably foresee adding additional transformer capacity at Banducci Substation in the 10-year planning horizon.

3.5.4.3 12 kV Switchrack

The 12 kV low-profile steel switchrack would be approximately 17 feet high, 34 feet wide, and 126 feet long and would have an operating bus and a transfer bus. The 14-position switchrack would consist of the following:

- Six 12 kV positions, each equipped with a circuit breaker and either six or nine disconnect switches. Three of these positions would be assigned to 12 kV circuits, two positions would be assigned to transformer banks, and one position would be assigned to a bus tie between the operating bus and transfer bus.
- Four 12 kV positions would be equipped with three disconnect switches each.
- Four 12 kV positions would be vacant for future use.

3.5.4.4 Capacitor Banks

There would be a total of two 12 kV, 4.8 megavolt-ampere reactive (MVAR) each, low side capacitor banks installed at the substation. Each 12 kV capacitor bank area would be approximately 17 feet high, 27 feet long, and 13 feet wide. Each 12 kV capacitor bank would be equipped with a circuit breaker and three current-limiting reactors.

3.5.4.5 Mechanical and Electrical Equipment Room

The MEER is a pre-fabricated structure that is typically made of steel. SCE anticipates that the MEER would have a desert-tan roof and sidewalls and that the roofline, wall joints, and doorway would have roman-bronze trim. The MEER would be equipped with heating, ventilation, and air-conditioning (HVAC) units and would house equipment such as protective relaying equipment, telecommunications equipment, substation automation and control equipment, batteries, and associated equipment. Control cable trenches would be installed to connect the MEER to the 66 kV and the 12 kV switchracks. The MEER dimensions would be approximately 10 feet high, 38 feet long, and 15 feet wide.

3.5.4.6 Restroom Facilities

Currently, there is no water source adjacent to the site and no sewer service option is available. Therefore, a permanent stand-alone restroom would be installed within the substation perimeter wall, which would be equipped with self-contained water- and waste-holding tanks. The restroom would be maintained by an outside service company. The restroom enclosure would be a maximum of approximately 10 feet high, 14 feet long, and 14 feet wide.

3.5.4.7 Substation Access

Access to the proposed Banducci Substation site would be from the west along a paved driveway connecting Pelliser Road to the substation entry gate located at the southwestern substation wall. The driveway would be asphalt concrete paved, 24 feet wide, and approximately 115 feet long. The automated substation entry gate would be approximately 8 feet high and 24 feet wide. A four-foot wide walk-in gate would provide access for substation personnel as needed.

3.5.4.8 Substation Grading and Drainage

The proposed Banducci Substation site has an average approximate elevation of 3,838 feet AMSL. Existing drainage patterns slope from southeast to northwest. After construction of the proposed Banducci Substation and the associated perimeter wall, runoff would be diverted around the enclosed substation back towards the natural drainage pattern. The internal substation area would slope at between one and two percent from east to west.

Prior to substation construction, SCE would prepare final engineering drawings for grading and drainage, and would submit these drawings to Kern County to obtain any ministerial grading permit(s). If required by Kern County ministerial grading or water quality standards, an earthen retention basin would be included.

Based on the anticipated volume of hazardous liquid materials (such as mineral oil) in excess of 1,320 gallons to be used at the site, a Spill Prevention Control, and Countermeasure (SPCC) Plan would be required in accordance with 40 Code of Federal Regulations (CFR) Parts 112.1-112.7. Typical SPCC features include curbs/valves, trenches, berms, or other features/structures designed and installed to contain spills, should they occur. This system would be part of SCE's final engineering design for the Proposed Project.

3.5.4.9 Substation Lighting

Lighting at the proposed Banducci Substation would consist of LED (light emitting diodes), low intensity lights located in the switchracks, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours for emergency/scheduled work. Maintenance lights would be controlled by a manual switch and would normally be in the "off" position. The maintenance lights would be directed downward to reduce glare outside the facility. A light indicating the operation of the rolling gate would automatically turn on once the gate begins to open and would turn off shortly after the gate is closed.

3.5.4.10 Substation Perimeter

The proposed Banducci Substation would be enclosed on all sides by an 8-foot-high perimeter wall. SCE anticipates that the wall would be constructed of light-colored, decorative, pre-cast or concrete masonry material. A band of at least three strands of barbed wire would be affixed near the top of the perimeter enclosure inside of the substation and would not be visible from the outside.

Landscaping around the proposed Banducci Substation would be designed to filter views for the surrounding community and other potential sensitive receptors. Prior to commencement of the substation construction, SCE would develop an appropriate drought-resistant landscaping plan and perimeter wall design that would be submitted with the ministerial grading permit application for the Proposed Project.

3.5.4.11 Modifications at Other Substations

A self-contained equipment cabinet housing telecommunications equipment and the appropriate HVAC equipment would be installed within the fence line of the existing Cummings Substation. The dimensions of the new equipment cabinet would be approximately 78 inches high, 39 inches wide, and 24 inches deep. Additional conduit would be installed to connect the fiber optic telecommunications cable to the new cabinet at Cummings Substation and to the existing communications room at Monolith Substation.

In addition, new protective relay and communication equipment would be added to the existing MEER at Monolith Substation and to the existing equipment cabinet at Cummings Substation.

3.5.4.12 Electrical Need Area of the Proposed Substation

The ENA that would be served by the Proposed Project is described in Section 1.3 (Figure 1.2).

3.6 Right-of-Way Requirements and Land Use Rights

SCE would acquire approximately 6.3 acres of land in fee for the proposed Banducci Substation, and certain easements would need to be acquired and/or amended.

Substation: The proposed Banducci Substation would be located on the east side of Pelliser Road and approximately 0.5 mile south of Highline Road. The Substation property would require the fee acquisition of approximately 6.3 acres to allow for the substation footprint as well as a setback supporting future road improvements, landscaping, access, parking, subtransmission tie-in, and 12 kV distribution getaway routes. The property has a history of general agricultural use.

Access: Substation access would be provided directly from Pelliser Road onto the substation fee owned property. Access to the other project components would be via public access or over existing SCE land rights. Subject to final engineering requirements, no further acquisition of any new rights for access to the proposed facilities is anticipated.

Subtransmission: The proposed 66 kV subtransmission lines would tie into the proposed Banducci Substation from the existing 66 kV subtransmission line along Pelliser Road. This line is currently located within the public ROW where SCE holds franchise rights. The 66 kV subtransmission line tie-in on the north and south sides of the proposed Banducci Substation may require a slight overhang easement subject to final engineering.

Distribution: The 12 kV distribution getaways would exit the proposed Banducci Substation wall, would remain on the fee-owned substation property until they exit the property and enter the road franchise area on Pelliser Road. Subject to final engineering requirements, no further acquisition of any new rights for distribution is anticipated.

Telecommunications: The telecommunications would be constructed on existing distribution and subtransmission lines to support the proposed Banducci Substation. The telecommunications would enter into the proposed Banducci Substation from the subtransmission alignment, directly from the franchise area. Two telecommunication lines constructed would be constructed. Proposed Telecommunication Route 1 is proposed primarily within existing SCE easements or franchise areas, but is subject to final engineering requirements and may require a permit from a railroad company and Caltrans to cross their facilities, as well as an upgrade of one easement and the acquisition of one new easement. Subject to final engineering requirements, Proposed Telecommunication Route 2 is anticipated to require two permits to cross over railroad facilities, a Caltrans permit, and the acquisition of approximately four private easements.

Construction Support: Based on final engineering and construction requirements, temporary access rights may be acquired from private land owners to provide sufficient work space for any field activity.

3.7 Construction

The following subsections provide details regarding the general components associated with the construction of the Proposed Project.

3.7.1 For All Projects

The following elements apply to all components of the Proposed Project.

3.7.1.1 Staging Areas

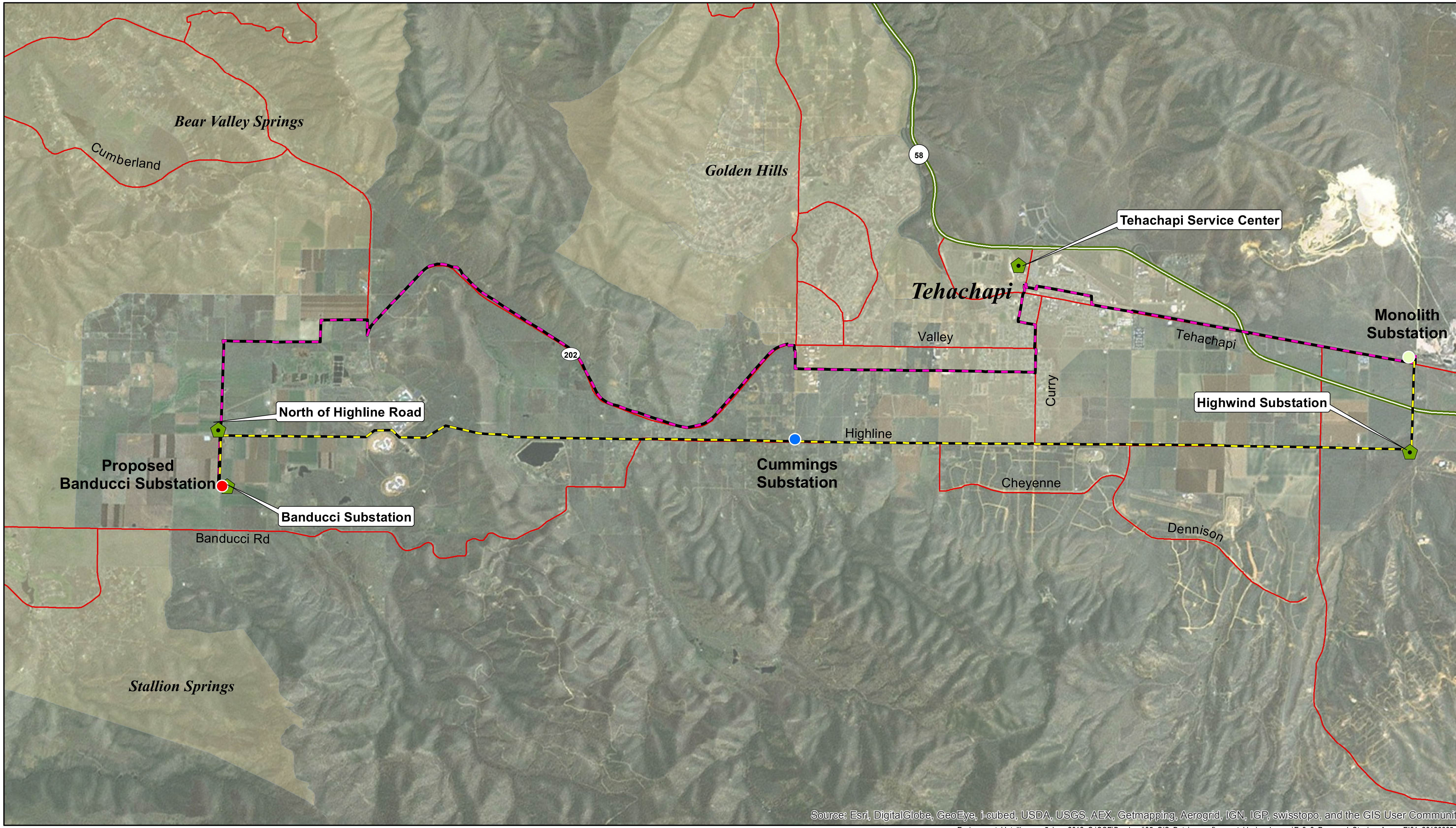
Construction of the Proposed Project would require the establishment of temporary staging yards that would be used as a reporting location for workers, vehicle and equipment parking, and material storage. These yards may also have construction trailers for supervisory and clerical personnel. Staging yards may be lit for staging and security. Normal maintenance and refueling of construction equipment would also be conducted at these yards. All refueling and storage of fuels would be in accordance with Storm Water Pollution Prevention Plan (SWPPP).

SCE's proposed primary staging area would be approximately 1 acre located within the approximately 6.3 acre proposed substation property. Preparation of this staging yard would include temporary perimeter fencing and, depending on existing ground conditions at the site, grubbing and/or grading may be required to provide a plane and dense surface for the application of gravel or crushed rock. In addition, SCE may use one or more other locations shown in

Figure 3.9: Potential Staging Areas and Table 3.3: Potential Staging Yard Locations as a staging area.

Table 3.3 Potential Staging Yard Locations

Yard Name	Location	Condition	Approximate Area	Project Component
No. 1	Banducci Substation Property	Graded Property	1 acre	Substation / Subtransmission
No. 2	Tehachapi Service Center	Previously Disturbed	0.5 acre	Telecommunications / Distribution
No. 3	North of Highline Road	Previously Disturbed	1 acre	Subtransmission
No. 4	Highwind Substation	Previously Disturbed	1 acre	Telecommunications



Environmental Intelligence. 5 June 2012. Q:\SCE\Banducci\05_GIS_Data\maps_figures_tables\workspace\Ex3_8_Proposed_Staging_Areas_EI01_20120605.mxd

Legend

- Proposed Banducci Substation
- Cummings Substation
- Monolith Substation
- Proposed Telecommunications Route 1
- Proposed Telecommunications Route 2
- Freeway / Major Highway
- Major Road / Minor Highway

Staging Areas (Not to scale)

- Banducci Substation
- Tehachapi Service Center
- North of Highline Road
- Highwind Substation

N W E S

0 0.5 1 2 Miles

Figure 3.9: Potential Staging Areas

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Following the completion of construction for the Proposed Project, any land that may be disturbed at a non-SCE owned staging yard may be restored to pre-construction conditions or to the landowner's requirements established during lease negotiations.

Temporary power would be determined based on the type of equipment/facilities being used at the staging yards. If existing distribution facilities are available, a temporary service and meter may be used for electrical power at one or more of the yards. If it is determined that temporary power is not needed at the staging yards full time, a portable generator (49 hp and below) may be used intermittently for electrical power at one or more of the yards.

Also, in order to provide construction power to construct Banducci Substation and to the laydown areas at the site, SCE would install two transformers on an existing wood pole located approximately 250 feet south of the proposed Banducci Substation. A temporary wood power pole would be installed in the southwest corner of the substation property. A span of 120/240 V, 3-phase, 4-wire overhead secondary conductor would be installed along with an overhead service drop to the new temporary power pole. These facilities would be removed upon completion of the project.

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

Materials commonly stored at the subtransmission and/or telecommunications construction staging yards would include, but not be limited to, construction trailers; construction equipment; portable sanitation facilities; steel bundles; steel/wood poles; conductor reels; overhead ground wire (OHGW) or overhead optical ground wire (OPGW) reels; hardware; insulators; cross arms; signage; consumables (such as fuel and filler compound); waste materials for salvaging, recycling, or disposal; and best management practice (BMP) materials (straw wattles, gravel, and silt fences). Fuel stored at the site is generally used for small engine generators for power tool usage and is usually less than 25 gallons.

3.7.1.2 Work Areas

Land Disturbance

Land disturbance would include all areas affected by construction of the Proposed Project. It is estimated that the Proposed Project would be permanently disturb a total of approximately 6.44 acres and would temporarily disturb approximately 34.61 acres. The estimated amount of land disturbance for each project component is summarized in Table 3.4: Estimated Temporary and Permanent Land Disturbance.

Where necessary, SCE would utilize overland access from the edge of paved or dirt roads to access pole locations and temporary construction areas, such as pole work areas, stringing setup areas, and staging area locations. Overland access routes would also occur within the temporary work areas for the poles. Construction activities associated with temporary access could include vegetation clearing, blade-grading, grubbing, mowing, and re-compacting. The number of locations required would be dependent upon final engineering, topographical considerations, and availability of suitable terrain that would provide safe access for these construction activities. These access locations would not be maintained by SCE after the project construction is completed, but instead utilized on an as-needed basis for operation and maintenance.

Table 3.4 Estimated Temporary and Permanent Land Disturbance

Project Element	Site Quantity	Disturbed Area Calculation (L x W in Feet)	Acres Temporarily Disturbed During Construction	Acres to Be Restored	Acres Permanently Disturbed
Substation					
Internal Grading of Substation Site	1	440 x 326	3.30	0	3.30
External Grading of the Substation Site (Excluding Access Road)	1	Irregular Shape	2.94	0	2.94
Access Road to Substation	1	115 x 24	0.06	0	0.06
Total Estimated for Substation			6.30	0	6.30
Distribution Getaways					
Vault and Vents	5	22 x 10	0.005	0.002	0.003
Duct and Trench	4,550'	4,550 x 30	3.09	3.09	0.0
Total Estimated for Distribution			3.10	3.10	0.003
Subtransmission Project Feature					
Remove Existing Wood Pole (1)	4	150 x 75	1.03	1.03	0.00
Remove Existing Wood Pole and Install New Wood Pole (2)	5	150 x 75	1.29	1.24	0.00
Construct New Wood Pole (3)	2	150 x 75	0.52	0.50	0.02
Construct New Tubular Steel Guy Pole (3)	2	200 x 150	1.38	1.26	0.12
Construct New Tubular Steel Pole (3 and 4)	6	200 x 150	0.00	0.00	0.00
Construct New Light Weight Steel Pole (4)	2	200 x 100	0.00	0.00	0.00
Conductor Stringing Setup Area (5)	8	600 x 100	11.02	11.02	0.00
Material and Equipment Staging Area (6)	1	1 Acre	1.00	1.00	0.00
Total Estimated (7)			16.24	16.05	0.14
Telecommunications Project Location					
Banducci Substation	2	300 x 20	0.14	0.14	0.0
Cummings Substation	1	500 x 20	0.27	0.27	0.0
Pelliser Road, 1400 feet S/O Highline	1	100 x 20	0.05	0.05	0.0

Project Element	Site Quantity	Disturbed Area Calculation (L x W in Feet)	Acres Temporarily Disturbed During Construction	Acres to Be Restored	Acres Permanently Disturbed
Road					
Highway 202 at Woodford-Tehachapi Road	1	850 x 20	0.39	0.39	0.0
Fiber Optic Cable Stringing Sites	36	100 x 30	2.52	2.52	0.0
Distribution Class Poles to Be Removed/Replaced	39	125 x 50 Per Pole	5.60	5.60	0.0
Total Estimated for Telecommunications			8.97	8.97	0.0
Total Estimated for Proposed Project			34.61	28.12	6.44

Notes:

1. Includes the removal of existing conductor and teardown of existing structure for wood poles north and west of Proposed Banducci Substation.
2. Includes the transfer of existing conductor and teardown of existing structure for wood poles south of Proposed Banducci Substation and near Highline Road. Includes structure erection and conductor installation. Portion of ROW within 10' of Wood Poles to remain cleared of vegetation. The permanent disturbance is zero because the area of the new poles is within the previously disturbed area (0.05 acres) of the existing poles being removed.
3. Includes structure assembly, erection, guy wire and/or conductor installation. The permanent area of disturbance includes that portion within 25' of a Tubular Steel Pole or 10' of a LWS or Wood Pole and would remain cleared of vegetation; permanently disturbed area is approximately 0.06 ac/TSP, 0.01 ac/LWS and Wood Pole.
4. The temporary and permanent disturbance area calculations for these structures are zero because they are located within the substation property area and are accounted for in the substation area calculations.
5. Based on number of circuits and route design.
6. The disturbed acreage for the material storage area would be restored upon the completion of the Proposed Project.
7. The disturbed acreage calculations are estimates based upon SCE's preferred area of use for the described project feature, they do not include any new access/spur road information; they are subject to revision based upon final engineering and review of the project by SCE's Construction Manager and/or Contractor awarded project.

Assumptions for Footing / Base Volume and Area Calculations:

Average TSP depth 30 feet deep, 7 feet diameter, quantity 1 per TSP: earth removed for footing = 42.8 cu. yds.; surface area = 38.5 sq. ft.
Average LWS depth 12 feet deep, 2.5 feet diameter, quantity 1 per LWS: earth removed for pole base = 2.2 cu. yds.; surface area = 4.9 sq. ft.
Average Wood Pole depth 12 feet deep, 2.5 feet diameter, quantity 2 per Pole: earth removed for pole base = 4.4 cu. yds.; surface area = 9.8 sq. ft.

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

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

3.7.1.3 Access Roads

The portion of the proposed subtransmission line route outside of the proposed Banducci Substation site would be accessed from Pelliser Road. The new subtransmission poles inside the proposed Banducci Substation perimeter wall would be accessed via the substation driveway and gate. No additional access roads or spur roads would be necessary.

3.7.1.4 Helicopter Access

Helicopter access would not be applicable for the Proposed Project.

3.7.1.5 Vegetation Clearance

The proposed Banducci Substation site is a portion of historically agricultural land. The site would be prepared by clearing existing vegetation within its boundaries by grubbing, grade-blading or mowing; medium-size dozers with multiple blade attachments would be typical equipment that would be used for vegetation clearance.

No tree removal has been identified to be necessary.

Similar vegetation clearance methods would be applied to the construction areas of the other Proposed Project components, if necessary.

3.7.1.6 Erosion and Sediment Control and Pollution Prevention During Construction

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. 2009-009-DWQ as amended by 2010-0014-DWQ) from the Central Valley Regional Water Quality Control Board. To acquire this permit, SCE would prepare a SWPPP that includes project information, design features, monitoring and reporting procedures, as well as BMPs. Commonly used BMPs are storm water runoff quality control measures (boundary protection), dewatering procedures, and concrete waste management. The SWPPP would be based on final engineering design and would include all project components.

Dust Control

During construction, migration of fugitive dust from construction sites would be limited by implementation of applicable regulations, potentially including control measures set forth in Rules 401 and 402 of the Eastern Kern Air Pollution Control District (EKAPCD). These measures may include the use of water trucks and other dust-control measures.

Hazardous Materials

Construction of the Proposed Project would require the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. All hazardous materials would be stored, handled, and used in accordance with applicable regulations. Material Safety Data Sheets would be made available at the construction site for all crew workers. The SWPPP prepared for the Proposed Project would provide the locations for storage of hazardous materials during construction, as well as protective measures, notifications, and cleanup requirements for any incidental spills or other potential releases of hazardous materials.

Reusable, Recyclable, and Waste Material Management

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

As previously noted in the telecommunications description in this Chapter, approximately 39 existing wood poles would be replaced as part of the Proposed Project. Prior to the removal of existing poles, the existing distribution lines (where applicable) and the associated hardware (e.g., insulators, vibration dampeners, suspension clamps, ground wire clamps, shackles, links, nuts bolts, washers, cotters pins, insulator weights, and bond wires) would be transferred to the new poles. All remaining distribution equipment that is not reused by SCE would be removed and delivered to a facility for recycling. Depending on the type, condition and original chemical treatment, the removed wood poles could be reused by SCE for other purposes, disposed of in a Class I hazardous waste landfill, or disposed of in the lined portion of a Regional Water Quality Control Board (RWQCB) certified municipal landfill.

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 RWQCB-certified municipal landfill.

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

3.7.1.7 Cleanup and Post-Construction Restoration

Following the completion of construction for the Proposed Project, SCE would restore all areas that would be temporarily disturbed by construction of the Proposed Project (including the material staging yards, construction setup areas, pull and tension sites, and splicing sites) to as close to pre-construction conditions as possible, or to the landowner’s requirements established during lease negotiations.

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

3.7.2 Subtransmission Line Construction (Above Ground)

66 kV Subtransmission Line Segment Installation

The following sections describe the construction activities associated with installing the 66 kV subtransmission line segments for the Proposed Project. The new subtransmission structure pad locations and temporary laydown/work areas would first be graded and/or cleared of vegetation as required to provide a reasonably level and vegetation free surface for structure installation. Sites would be graded such that water would run toward the direction of the natural drainage. In addition, drainage would be designed to prevent ponding and erosive water flows that could damage the structure footings. The graded area would be compacted and would be capable of supporting heavy vehicular traffic.

Erection of the structures may also require the establishment of a temporary crane pad. The crane pad would occupy an area of approximately 50 feet by 50 feet and would be located adjacent to each applicable structure within the laydown/work area used for structure assembly.

The pad may be cleared of vegetation and/or graded as necessary to provide a level surface for crane operation. The decision to use a separate crane pad would be determined during final engineering for the Proposed Project and the selection of the appropriate construction methods to be used by SCE or its contractor.

Energizing 66 kV Subtransmission Lines

Energizing the new source lines is the final step in completing the 66 kV subtransmission construction. The Correction-Kern River 1 section of the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line would be de-energized in order to connect the new 66 kV subtransmission line segments to the existing system. To reduce the need for electric service interruptions, de-energizing and re-energizing the existing subtransmission lines may occur at night when electrical demand is low. No customers are expected to experience outages due to this action.

3.7.2.1 Pull and Tension Sites

For the purposes of this PEA, the term "pull and tension site" is synonymous with the term "stringing site." Wire stringing activities would be conducted in accordance with SCE practices and similar to process methods detailed in the Institute of Electrical and Electronics Engineers (IEEE) Standard 524-2003 (Guide to the Installation of Overhead Transmission Line Conductors).

The following five steps describe typical wire-stringing activities:

- Step 1: Planning: Determine the locations of wire pulls and wire-pull equipment set-up positions.
- Step 2: Sock Line, Threading: A 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.
- Step 3: Pulling: The sock line would be used to pull in the wire-pulling cable. The wirepulling cable would be attached to the wire using a swivel joint to prevent damage to the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel.
- Step 4: Splicing, Sagging, and Dead-Ending: After the wire is pulled in, any required mid-span splicing would be performed. Once the splicing has been completed, the wire would be sagged to proper tension and dead-ended to structures.
- Step 5: Clipping-In: After the wire is dead-ended, the wire would be attached to all tangent structures.

Wire stringing and pull sites may be slightly offset and/or angled to extend outside of the right of way to clear unavoidable obstructions. Also, at deflection points along the 66 kV subtransmission line route, wire stringing and pull sites typically extend beyond the ROW.

The largest anticipated distance between the stringing sites would be approximately 370 feet, while the general distance between stringing sites are expected to range from approximately 75 to approximately 370 feet. Some stringing sites may overlap due to the short distance between some of the poles.

The number of stringing sites are outlined in Table 3.4. The shape and size of each pull and tension site would be determined based on site-specific local conditions.

3.7.2.2 Pole Installation and Removal

A three-man construction crew using three pick-up trucks at the site would perform installation work inside the MEER at the proposed Banducci Substation. Additionally, a three-man construction crew using three pick-up trucks would perform installation work inside the MEER at both Cummings Substation and Monolith Substation.

Table 3.6 provides the anticipated equipment and workforce required for the project. The crews would use one or more of the construction vehicles listed under the column titled “Primary Equipment Description” in Table 3.6 for each construction activity they are working on any given day to get to and from the pole sites, stringing sites, and material staging yards. The “Duration of Use (Hrs/Day)” column describes the hours of use for each vehicle type on any given day. The numbers of anticipated trips are discussed within 4.16 Transportation and Traffic.

Pole and Foundation Removal

Typical pole removal would include the use of a boom truck to support the structure during dismantling and removal of the pole. Holes would be backfilled, generally by hand using native soil compacted, and smoothed to match surrounding grade. Typical pole installation would include the use of a boom truck with an auger to first dig and then set the pole.

Top Removal

Toping is not required for any of the existing poles for the Proposed Project.

Pole/Tower Installation

Tubular Steel Pole Installation

Each TSP would require a drilled, poured-in-place, concrete footing that would form the structure foundation. The hole would be drilled using truck or track-mounted excavators. Excavated material would be used as described in *Reusable, Recyclable, and Waste Material Management* in subsection Section 3.7.1.6. Following excavation of the foundation footings, steel-reinforced cages would be set, positioning would be survey verified, and concrete would then be poured. Foundations in soft or loose soil or those that extend below the groundwater level may be stabilized with drilling mud slurry. In this instance, mud slurry would be placed in the hole during the drilling process to prevent the sidewalls from sloughing. Concrete would then be pumped to the bottom of the hole, displacing the mud slurry. Depending on site conditions, the mud slurry brought to the surface would typically be collected in a pit adjacent to the foundation or vacuumed directly into a truck to be reused or discarded at an appropriate off-site disposal facility.

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

TSP guy poles would be installed similarly to TSPs.

Wood Pole Installation

Each wood pole would require a hole to be excavated using either an auger, backhoe, or with hand tools. Excavated material would be used as described in *Reusable, Recyclable, and Waste Material Management* in Section 3.7.1.6. The wood poles would be placed in temporary laydown areas at each pole location. While on the ground, the wood poles may be configured (if not preconfigured) with the necessary cross arms, insulators, and wire-stringing hardware before being set in place. The wood poles would then be installed in the holes, typically by a line truck with an attached boom.

Lightweight Steel Pole Installation

Each LWS pole would require a hole to be excavated using either an auger or excavated with a backhoe. Excavated material would be used as described in *Reusable, Recyclable, and Waste Material Management* in Section 3.7.1.6. LWS poles consist of separate base and top sections and may be placed in temporary laydown areas at each pole location. Depending on conditions at the time of construction, the top sections may come pre-configured, may be configured on the ground, or configured after pole installation with the necessary cross arms, insulators, and wire-stringing hardware. The LWS poles would then be installed in the holes, typically by a line truck with an attached boom. When the base section is secured, the top section would be installed on top of it. Depending on the terrain and available equipment, the pole sections could also be assembled into a complete structure on the ground prior to setting the poles in place within the holes.

3.7.2.3 Conductor/Cable Installation

Distribution Getaway Installation

Excavation activities would generally be done using a backhoe. The anticipated dimensions for the trench would be approximately 24 inches wide, by approximately 50 inches deep, and by the lengths identified in Section 3.5.3.2.1, Distribution Getaways. Shields or trench shoring would then be temporarily installed for safety to brace the walls of the trench. The conduits would then be installed using spacers to create a duct bank (see Figure 3.8: Typical Duct Bank) consisting of two columns of three stacked 5 inch conduits apiece. The temporary shoring would then be removed.

Vault excavation would typically be 3 feet greater than the vault’s width and length dimensions, as well as 4 feet deeper than the vault's height. The backhoe would be used to place the excavated soil into the dump truck to haul away. Calculation of the area of disturbance would be approximately 15 feet on either side of trench and on all sides of vaults. The conduits would then be encased in concrete with a minimum encasement of 3 inches on all sides. After the concrete encasement has hardened, the trench would be backfilled with 1.5 sack and sand slurry (which is a mix of sand and water with 1.5 bags of cement added with no aggregate). If repaving is necessary, this work would be performed in accordance with applicable requirements. Precast vaults would typically be installed and backfilled with slurry.

After the civil work of installing the duct bank, vaults, and vent pipes has been completed, SCE’s contractor or SCE’s cable crews would arrive at a later date to pull in three single conductor 1000 kcmil jacketed aluminum cross-linked polyethylene (CLP) cables per circuit run in one of the 5- inch conduits in the duct bank. To accomplish this, a rodder (cable pulling truck) would set up at every other vault to pull cable both ways. At opposite ends of every other vault, cable carousels would be set up to feed cable both ways. Distribution crews typically would install the vault grounds, rack the cables, install any switches, any transformers and any other necessary equipment, and make the appropriate cable splices and terminations. Switching would be performed to put the new equipment into service. Where applicable, SCE would work with the appropriate agencies to secure any necessary ministerial permits.

3.7.3 Subtransmission Line Construction (Below Ground)

No underground subtransmission construction is anticipated for the Proposed Project.

3.7.3.1 Trenching

No trenching for subtransmission is anticipated for the Proposed Project.

3.7.3.2 Trenchless Techniques: Microtunnel, Bore and Jack, Horizontal Directional Drilling

No trenchless construction is anticipated for the Proposed Project.

3.7.4 Substation Construction

SCE anticipates that approximately 6.3 acres of the proposed Banducci Substation site would be graded. A temporary chain link fence would be installed around the proposed Banducci Substation perimeter.

Grading activities would take place as previously described in this Chapter. The proposed ground surface improvements at the substation site are discussed in Section 3.7.4.1. Section 3.7.1.5 describes the vegetation clearance. Slopes at the site will be less than 5 feet in height and therefore no slope stabilization will be necessary. After the substation site is graded, below-grade facilities would be installed. Below-grade facilities include, for example, a ground grid, ground well, if needed, cable trenches, equipment foundations, substation perimeter foundations, conduits, duct banks, vaults, and manholes. The design of the ground grid would be based on soil resistivity measurements collected during a geotechnical investigation that would be conducted prior to construction. Early on construction may require the use of portable generators until full off-site power is available.

After the vegetation has been removed, the proposed substation site would be over excavated to the prescribed depth per the grading plan. The excavated soil would then be placed into the fill area, compacted to 90 to 95 percent compaction and tested throughout the site to verify the compaction rate. It is estimated that approximately 10,000 cubic yards of soil would be imported and delivered into the substation. Once the grading elevation has been verified by a survey crew and soil compaction rates are verified, construction efforts would then include the installation of the ground grid and a permanent block wall around the proposed Banducci Substation. Civil construction would involve the drilling and digging of holes for the foundations. Installed conduit and foundations would establish the completed ground grid. It is anticipated that approximately ¾ inch of rockdust would be placed 4 inches deep throughout the substation with exception of the areas that would be paved.

Above-grade installation of substation facilities such as buses, capacitor banks, switchracks, disconnect switches, circuit breakers, transformers, steel support structures, perimeter wall, restroom facilities, and the MEER would commence after the below-grade structures are in place. The transformers would be delivered by heavy-transport vehicles and installed on the transformer foundation. If necessary, traffic control would be implemented as described in this Chapter.

Prior to commencement of the substation construction, SCE would develop an appropriate drought resistant landscaping plan and perimeter wall design that would be submitted with the ministerial grading permit application for the Proposed Project. The proposed substation site is undeveloped agricultural land; no relocation of commercial or residential property is required for the completion of the Proposed Project.

3.7.4.1 Ground Surface Improvements

The enclosed substation surface would be covered with permeable material (crushed rock) in areas where no paving or structures would be placed. Surface materials and their approximate square footage and volumes are included in Table 3.5: Substation Ground Surface Improvement Materials and Volumes.

Table 3.5 Substation Ground Surface Improvement Materials and Volumes

Element	Material	Approximate Surface Area (sq. ft.)	Approximate Volume (cu. yds.)
Site Fill Site Cut Import	Soil	270,700	20,000 10,000 10,000
Substation Equipment Foundations	Concrete	2,000	140
Substation Drainage Swales	Concrete	12,000	375
Cable Trenches/Duct Bank	Concrete	1,900	100
66 kV Bus Enclosures	Asphalt Concrete	4,100	75
Internal Driveways	Asphalt Concrete Class II Aggregate Base	12,800 12,800	158 277
External Driveway	Asphalt Concrete Class II Aggregate Base	3,000 3,000	37 65
Substation Rock Surfacing	Rock, Nominal Diameter 1 to 1.5 Inch Per SCE Standard, 4 inch Depth	143,500	1,772
Block Wall Foundation	Concrete	3,940	330

3.7.5 Construction Workforce and Equipment

The estimated components, materials, and number of personnel and equipment required for construction of the Proposed Project are summarized in Table 3.6: Construction Equipment and Workforce Estimates.

Construction would be performed by either SCE construction crews or contractors. If SCE construction crews are used they typically would be based at SCE's local facilities, such as the Tehachapi Service Center. Contractor construction personnel would be managed by SCE construction management personnel. SCE anticipates a total of approximately 50 construction personnel working on any given day. SCE anticipates that crews would work concurrently whenever possible; however, the estimated deployment and number of crew members would vary depending on factors such as material availability, resource availability, and construction scheduling.

In general, construction efforts would occur in accordance with accepted construction industry standards. To the extent possible, SCE would comply with local ordinances for construction activities.

Table 3.6 Construction Equipment and Workforce Estimates

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Banducci Substation Construction			
Survey (2 People)	5	2-Survey Trucks	2 Hrs / Day
Grading (6 People)	30	1-DozerDozer 2-Loader 1-Scraper 1-Grader 1-Water Truck 1-4 X 4 Tamper 1-Tool Truck 4- Pick-up Truck	8 Hrs / Day 8 Hrs / Day 8 Hrs / Day 8 Hrs / Day 4 Hrs / Day 4 Hrs / Day 4 Hrs / Day 2 Hrs / Day
Fencing (Chain Link) (4 People)	10	1-Bobcat 1-Flatbed Truck 1-Crew Cab Truck	8 Hrs / Day 4 Hrs / Day 2 Hrs / Day
Civil (7 People)	76	1-Excavator 1-Foundation Auger 2-Backhoe 1-Dump Truck 1-Skip Loader 1-Water Truck 2-Bobcat Skid Steer 1-Forklift 1-17 Ton Crane 1-Tool Truck 4- Pick-up Truck	8 Hrs / Day 4 Hrs / Day 8 Hrs / Day 4 Hrs / Day 8 Hrs / Day 8 Hrs / Day 8 Hrs / Day 4 Hrs / Day 4 Hrs / Day 4 Hrs / Day 2 Hrs / Day
MEER (Not Pre-Built) (4 People)	5	2- Pick-up Truck 1-Stake Truck 1-17 Ton Crane	2 Hrs / Day 2 Hrs / Day 4 Hrs / Day
Electrical (8 People)	66	1-Scissor Lifts 2-Manlift 1-Reach Forklift 1-15 Ton Crane (Line Truck) 1-Tool Trailer 2-Crew Truck 1-70 Ton Crane	4 Hrs / Day 4 Hrs / Day 2 Hrs / Day 4 Hrs / Day 8 Hrs / Day 2 Hrs / Day 4 Hrs / Day
Wiring (2 People)	44	1-Manlift 1-Tool Trailer	2 Hrs / Day 8 Hrs / Day
Transformers (4 People)	5	2-Crew Truck 1-Low Bed Truck	2 Hrs / Day 2 Hrs / Day

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Maintenance Crew Equipment Check (4 People)	22	2-Maintenance Truck	2 Hrs / Day
Testing (2 People)	88	1-Crew Truck/Van	2 Hrs / Day
Asphalting (6 People)	10	1-Paving Roller 1-Asphalt Paver 1-Stake Truck 1-Tractor 1-Dump Truck 2-Crew Trucks 1-Asphalt Curb Machine	4 Hrs / Day 4 Hrs / Day 2 Hrs / Day 8 Hrs / Day 4 Hrs / Day 2 Hrs / Day 2 Hrs / Day
Landscaping (4 People)	5	1-Tractor 1-Dump Truck 1-Pick-up Truck	8 Hrs / Day 4 Hrs / Day 2 Hrs / Day
Distribution Getaway Construction			
Civil (5 People)	8	1-Backhoe / Front Loader 1-Dump Truck 1-1 Ton Crew Truck 1-Cement Truck 1-Paving Roller 1-Asphalt Paver 1-Grinder	8 Hrs / Day 4 Hrs / Day 2 Hrs / Day 4 Hrs / Day 4 Hrs / Day 4 Hrs / Day 4 Hrs / Day
Vault Delivery (1 Person)	2	1-4 Ton Truck with Crane	4 Hrs / Day
Cable Pulling (7 People)	2	1-Rodder Truck 1-Cable Carousel 1-1 Ton Crew Truck	8 Hrs / Day
Cable Splicing (4 People)	8	1-Line Truck 1-Crew Truck	8 Hrs / Day 2 Hrs / Day
Subtransmission Construction			
Survey (4 People)	2	1-1 Ton Truck	8 Hrs/ Day
Marshalling Yard (4 People)	Duration of Project	1-1 Ton Truck 1-R/T Fork Lift 1-Boom Crane Truck 1-Water Truck 1-Semi Tractor Truck	4 Hrs/ Day 6 Hrs/ Day 2 Hrs/ Day 8 Hrs/ Day 2 Hrs/ Day
Right of Way Clearing (5 People)	1	1-1 Ton Truck 1-Backhoe/Front Loader 1-Track Type Dozer 1-Motor Grader	8 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
		1-Water Truck 1-Lowboy Truck/Trailer	8 Hrs/ Day 4 Hrs/ Day
Roads & Landing Work (5 People)	1	1-1 Ton Truck 1-Backhoe/Front loader 1-Track Type Dozer 1-Motor Grader 1-Water Truck 1-Drum Type Compactor 1-Excavator 1-Lowboy Truck/Trailer	8 Hrs/ Day 4 Hrs/ Day 4 Hrs/ Day 6 Hrs/ Day 8 Hrs/ Day 6 Hrs/ Day 4 Hrs/ Day 4 Hrs/ Day
Removal of Existing Conductor (10 People)	1	2-1 Ton Truck 2-Manlift/Bucket Truck 2-Boom Crane Truck 1-Bull Wheel Puller 1-Sock Line Puller 1-Static Truck/Tensioner 2-Lowboy Truck/Trailer	4 Hrs/ Day 8 Hrs/ Day 8 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 4 Hrs/ Day
Wood Pole Removal (10 People)	1	2-1 Ton Truck 1-Compressor Trailer 1-Manlift/Bucket Truck 1-Boom Crane Truck 1-Flat Bed Pole Truck	8 Hrs/ Day 4 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 8 Hrs/ Day
Install TSP Foundations (6 People)	16	1-3/4 Ton Truck 1-Boom Crane Truck 1-Backhoe/Front loader 1-Auger Truck 1-Water Truck 1-DumpTruck 3-Concrete Mixer Truck	4 Hrs/ Day 4 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 8 Hrs/ Day 4 Hrs/ Day 4 Hrs/ Day
TSP Haul (4 People)	8	1-3/4 Ton Truck 1-Boom Crane Truck 1-Flat Bed Pole Truck	8 Hrs/ Day 6 Hrs/ Day 8 Hrs/ Day
TSP Assembly (10 People)	8	2-3/4 Ton Truck 2-1 Ton Truck 1-Compressor Trailer 1-Boom Crane Truck	4 Hrs/ Day 4 Hrs/ Day 6 Hrs/ Day 8 Hrs/ Day
TSP Erection (10 People)	8	2-3/4 Ton Truck 2-1 Ton Truck 1-Compressor Trailer 1-Boom Crane Truck	4 Hrs/ Day 4 Hrs/ Day 4 Hrs/ Day 8 Hrs/ Day
Wood/LWS Pole Haul (4 People)	2	1-3/4 Ton Truck 1-Boom Crane Truck 1-Flat Bed Pole Truck	8 Hrs/ Day 6 Hrs/ Day 8 Hrs/ Day

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Wood/LWS Pole Assembly (10 people)	3	2-3/4 Ton Truck 2-1 Ton Truck 1-Compressor Trailer 1-Boom Crane Truck	4 Hrs/ Day 4 Hrs/ Day 6 Hrs/ Day 8 Hrs/ Day
Install Wood/LWS Pole (10 People)	3	1-1 Ton Truck 1-Manlift/Bucket Truck 1-Boom Crane Truck 1-Auger Truck 1-Backhoe/Front loader 1-Extendable Flat Bed Pole Truck	8 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 4 Hrs/ Day 8 Hrs/ Day 8 Hrs/ Day
Install/Transfer Conductor (10 People)	4	3-1 Ton Truck 4-Manlift/Bucket Truck 1-Boom Crane Truck 1-Dump Truck 1-Wire Truck/Trailer 1-Sock Line Puller 1-Bull Wheel Puller 1-Static Truck/Tensioner 1-Backhoe/Front Loader 2-Lowboy Truck/Trailer	4 Hrs/ Day 8 Hrs/ Day 8 Hrs/ Day 2 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 6 Hrs/ Day 2 Hrs/ Day 4 Hrs/ Day
Restoration/Cleanup (5 People)	1	2-1 Ton Truck 1-Backhoe/Front Loader 1-Motor Grader 1-Water Truck 1-Drum Type Compactor 1-Lowboy Truck/Trailer	4 Hrs/ Day 4 Hrs/ Day 6 Hrs/ Day 8 Hrs/ Day 4 Hrs/ Day 4 Hrs/ Day
Telecommunications Construction			
Telecom Construction Inside MEER (3 People)	30	3-Pick-up Truck	6 Hrs / Day
Substructure Installation (4 People)	34	1-Backhoe 1-Dump Truck 1-Cement Truck	8 Hrs / Day 8 Hrs / Day 8 Hrs / Day
Wood Pole Replacement and Transfer Facilities (6 People)	40	2-1 Ton Truck 1-Double Bucket Truck 1-Boom Truck 1-Auger Truck	2 Hrs/ Day 8 Hrs/ Day 8 Hrs/ Day 4 Hrs/ Day
Fiber Optic Cable Installation (6 people)	62	2-Pick-up Truck 2-Manlift/Bucket Truck	8 Hrs / Day 8 Hrs / Day

SCE currently estimates that the construction equipment used for the Proposed Project could include the following:

Table 3.7 Equipment Expected to be Used During Project Construction

Type of Equipment	Use
• Bucket Truck (i.e. Cherry Picker)	• Lift and transport workers
• Crane	• Erect pole structures, lift and transport heavy construction items
• Backhoe or Bucket Excavator	• Transport personnel, tools, and materials
• Crew-Cab Truck/Pick-Ups	• Pull pole trailer for multi-pole loads
• Dump Truck	• Lift and transport heavy construction items
• Fork Lift	• Road construction (staging, pull sites)
• Grooming/Grading Equipment: -dozer -water truck -motor grader	• Move/compact soils -compaction and dust control -to properly pitch road for run-off
• Hole Auger/Truck Auger	• Excavate holes
• Line Truck and Trailer	• Haul conductor, poles, equipment, materials, and people, and to install pole/conductor
• Dozer	• Grading
• Mobile Offices	• Supervision and clerical office
• Pullers, Reel Dolly	• Install conductor
• Tensioned	• Install and move conductor
• Tractor/Trailer	• Haul materials, equipment, tools, etc.
• Two-Ton Truck	• Haul materials
• Static Wire Reel Trailer	• Transport reels of conductor

3.7.6 Construction Schedule

SCE anticipates that construction of the Proposed Project would take approximately 12 months.[3] Construction would commence following California Public Utilities Commission (CPUC) approval, final engineering, procurement activities, and receipt of all applicable permits.

3.8 Operation and Maintenance

The proposed Banducci Substation would be unstaffed, and electrical equipment within the substation would be remotely monitored and controlled by an automated system from SCE's

[3] The proposed construction schedule does not include delays due to inclement weather and/or stoppages necessary to protect biological resources (e.g., nesting birds).

Vincent Substation. SCE personnel would typically visit for electrical switching and routine maintenance purposes. Routine maintenance would include equipment testing, monitoring, and repair.

The proposed subtransmission line segments would be maintained in a manner consistent with CPUC General Order 165. Normal operation of the 66 kV subtransmission lines would be controlled remotely through SCE control systems. SCE inspects the energized subtransmission overhead facilities a minimum of once per year via ground and/or aerial observation. Maintenance would occur as needed and would include activities such as repairing conductors, replacing insulators, replacing poles, and access road maintenance. It is anticipated that there would be SCE personnel visiting the station approximately two to three times a week.

3.9 Applicant Proposed Measures

As part of the Proposed Project, SCE has identified seven Applicant Proposed Measures (APMs) that it plans to implement during construction and/or operation of the Proposed Project that would reduce or avoid impacts. SCE would conduct the design, construction, operation, and maintenance of the Proposed Project in accordance with its APMs. All project-related activities are subject to the APMs ultimately authorized by the CPUC. The proposed APMs are listed in Table 3.8: Applicant Proposed Measures.

Table 3.8 Applicant Proposed Measures

Applicant Proposed Measure	Description
APM BIO-1	**Pre-Construction Surveys and Construction Monitoring.** To the extent feasible, biological monitors would monitor construction activities in areas with special-status species, native vegetation, wildlife habitat, or unique resources to ensure such resources are avoided.
APM BIO- 2	**Pre-Construction Surveys for Nesting Birds/Raptors.** SCE would conduct project-wide nesting bird surveys and remove trees and other vegetation if feasible outside of the nesting season. If a tree or pole containing a raptor nest must be removed during nesting season, or if work is scheduled to take place in close proximity to an active nest on an existing transmission tower or pole, SCE biologists would determine appropriate nesting buffers based on a project-specific nesting bird management plan or consultation with the appropriate agencies.
APM BIO- 3	**Burrowing Owl.** Biologists would conduct a preconstruction burrowing owl

Applicant Proposed Measure	Description
	survey of the Proposed Project Study Area no more than 30 days prior to construction. Construction activities will be scheduled and planned to avoid burrowing owls and their burrows. A 250-foot buffer will be placed around active nest and the site would be avoided, where feasible. If occupied burrows cannot be avoided, an appropriate relocation strategy would be developed in conjunction with the California Department of Fish and Wildlife and may include collapsing burrows outside of nesting season and using exclusionary devices to reduce impacts to the burrowing owl. Biological monitors would monitor all construction activities that have the potential to impact active burrows.
APM BIO- 4	**Tehachapi Slender Salamander.** If project activities would be located within oak woodlands and ravines, construction activities would avoid displacement of rocks, logs, bark, and other debris in thick leaf litter, near talus slopes. For these areas, a biologist would be present to ensure that construction activities do not impact this species, particularly during periods of peak activity, such as rainy or wet nights with moderate temperatures.
APM BIO- 5	**Avoidance of Sensitive Habitats.** SCE would minimize impacts and permanent loss of Big Sagebrush Scrub, oak woodlands, and aquatic features at construction sites by flagging native vegetation to be avoided. If unable to avoid impacts to native vegetation, a project revegetation plan would be prepared in coordination with the appropriate agencies for areas of native habitat temporarily impacted during construction.
APM PA-1	**Paleontological Resources Treatment Plan.** A Paleontological Resources Treatment Plan shall be developed for construction within areas that have been identified as having a high sensitivity for paleontological resources or in areas where construction activities would exceed 10 feet in depth. The Paleontological Resources Treatment Plan would be prepared by a professional paleontologist in accordance with the recommendations of the SVP.
APM HAZ-1	**Fire Management Plan.** A Fire Management Plan would be developed by SCE prior to the start of construction.

3.10 Other Project-Related Activities

3.10.1 Geotechnical Studies

Prior to start of construction, SCE would conduct a geotechnical evaluation for the Proposed Project. Geotechnical site assessment and field investigation would be conducted at the substation site and new TSPs for the subtransmission line segments prior to the start of construction. The geotechnical studies include borings to collect soil samples for laboratory analysis and, if applicable, to determine the depth to bedrock and/or the water table. The laboratory results would be analyzed to determine the physical properties of subsurface soils, soil resistivity, and presence of hazardous materials. In addition, the results collected would be used for the foundation design and final design of the project.

3.10.2 Environmental Surveys

After project approval, but prior to the start of construction, environmental surveys would be conducted to identify sensitive biological and cultural resources in the vicinity of the Proposed Project, including the 66 kV subtransmission line route, wire stringing locations, access roads, and staging yards. In addition, these areas would be examined for obvious signs of chemical contamination, such as oil slicks and petroleum odors. Where feasible, the information gathered from these surveys may be used to modify the project design to avoid sensitive resources or to implement APMs to minimize the impact to sensitive resources from project-related activities. The results of these surveys would also determine the extent to which environmental specialist construction monitors would be required.

The environmental surveys that would occur prior to construction are described below.

Biological resources in the vicinity of the Proposed Project are presented in detail in Section 4.4, Biological Resources. Biological resource surveys to be completed are as follows.

Sensitive plant surveys would be conducted by a qualified botanist familiar with plants in the Cummings Valley. Surveys would focus on identifying the presence of state and federally listed species as well as California Native Plant Society special-status plants. In addition, potential habitat to support special-status plant species would be identified.

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

- Clearance Surveys. A clearance survey would be conducted no more than 30 days prior to the start of construction in a particular area to identify potential plant and animal species that may be impacted by construction activities. Clearance surveys include a field survey by a qualified botanist and wildlife biologist and would be limited to areas directly impacted by construction activities.

- Active nests. Within one week prior to the start of construction in a particular area during nesting season (generally February 1 to August 31), a nesting survey would be conducted. If a nest must be moved during the nesting season, SCE would coordinate with the California Department of Fish and Wildlife and the United States Fish and Wildlife Service to obtain approval prior to moving the nest.

Cultural resources in the vicinity of the Proposed Project are presented in detail in Section 4.5, Cultural Resources. Most of the areas of the Proposed Project have been surveyed for cultural resources. The presently unsurveyed portions of the Proposed Project would be surveyed for cultural resources prior to construction based on final engineering, and the following actions would be taken, as necessary:

- During the surveys, any discovered archaeological resource potentially affected by construction of the Proposed Project would be evaluated for its eligibility for listing in the California Register of Historical Resources (California Register). Ideally, archaeological resources found to meet any of the California Register eligibility criteria would be avoided and preserved in place. If avoidance is not feasible, a data recovery plan would be prepared to recover scientifically consequential information from the site prior to construction of the Proposed Project. The data recovery plan would define all aspects of the data recovery program, including a research design, description of all archaeological methods and techniques to be employed in data recovery, as well as analytical and reporting procedures and required reports. Studies and reports resulting from site recordation and data recovery would be deposited with the Southern San Joaquin Valley Information Center and other appropriate agencies. Provision would be made for the appropriate curation of any artifacts and other recovered materials at a museum or other qualified repository.

- If previously undetected archaeological resources are discovered during construction of the Proposed Project, personnel would be instructed to suspend work in the vicinity of any find, and work would be redirected to avoid impacting the resource. The resource would then be evaluated for listing in the California Register by a qualified archaeologist, and, if the resource is determined to be eligible for listing in the California Register, the resource would either be avoided or appropriate archaeological protective measures would be implemented.

- In the event that human remains are encountered during preconstruction surveys or construction and cannot be avoided, the remains would be removed in accordance with CEQA Guidelines 15064.5(d) and (e).

Any built environment resources found would be fully documented using California Department of Parks and Recreation Form 523 and supplements.

Each built environment resource potentially affected by construction of the Proposed Project would be evaluated for its eligibility for listing in the California Register. Ideally, built resources found to meet any of the California Register eligibility criteria would be avoided by the Proposed Project and preserved in place. If avoidance is not feasible, each California Register eligible resource affected by the Proposed Project would be recorded to the Historic American Building Survey / Historic American Engineering Record / Historic American Landscape Survey standards.

3.10.3 Worker Environmental Awareness Training

Prior to construction, a Worker Environmental Awareness Program would be developed. A presentation would be prepared by SCE and used to train all site personnel prior to the commencement of work. A record of all trained personnel would be kept.

In addition to instruction on compliance with any additional site-specific biological or cultural resource protective measures and Proposed Project mitigation measures developed after the preconstruction surveys, all construction personnel would also receive the following:

- A list of phone numbers of SCE environmental specialist personnel associated with the Proposed Project (archaeologist, biologist, environmental coordinator, and regional spill response coordinator).

- Instruction on the EKAPCD fugitive dust rules.

- Instruction on what typical cultural resources look like and instruction that if discovered during construction, work is to be suspended in the vicinity of any find and the site foreman and archaeologist or environmental coordinator is to be contacted for further direction.
- Instruction on the individual responsibilities under the Clean Water Act, the project SWPPP, site-specific BMPs, and the location of Material Safety Data Sheets for the project.
- Instructions to notify the foreman and regional spill response coordinator in case of a hazardous materials spill or leak from equipment, or upon the discovery of soil or groundwater contamination.
- A copy of the truck routes to be used for material delivery.
- Instruction that noncompliance with any laws, rules, regulations, or mitigation measures could result in being barred from participating in any remaining construction activities associated with the Proposed Project.
- Instruction on Ozone Precursor Control Measures.
- Direction that site vehicles must be properly muffled.

3.10.4 Traffic Control

Construction activities undertaken within public street ROW would require the use of a traffic control service, and all lane closures would be conducted in accordance with applicable requirements. These traffic control measures would be consistent with those published in the *California Joint Utility Traffic Control Manual* (California Inter-Utility Coordinating Committee, 2010).