2 PROJECT DESCRIPTION

2.1 INTRODUCTION

This Draft EIR evaluates the environmental impacts associated with construction, operation, and maintenance of the SDG&E proposed project. The proposed project includes the following components:

- **Proposed Substation**: Construction and operation of a new 120-MVA, 69/12-kV electric distribution substation in southeast Chula Vista, California. The proposed substation would include three distribution circuits to connect to an existing distribution network at Hunte Parkway. The substation would include an underground loop-in of an existing 69-kV power line (TL 6910) and fiber optic line located in the SDG&E transmission corridor adjacent to the proposed substation site.
- **TL 6965**: Construction of approximately 5 miles of overhead 69-kV power line and approximately 1,000 feet of underground power line between Miguel Substation and the proposed substation. The overhead power line would be installed on 41 new steel poles and eight existing steel poles.
- **Miguel Substation Modifications:** Addition of a new circuit position at Miguel Substation for TL 6965.

2.2 PROJECT OBJECTIVES

2.2.1 SDG&E's Proposed Project Objectives

The objectives of the proposed project are defined by SDG&E in its Proponent's Environmental Assessment (PEA). The CPUC did not adopt the objectives that SDG&E has defined for the proposed project in this Draft EIR. SDG&E's defined objectives are to:

- Meet the area's projected long-term electric distribution capacity needs by constructing the proposed substation near planned load growth to maximize system efficiency
- Provide three 69-kV circuits into the proposed substation to serve load growth in the region and meet the regulatory requirements of the North American Electric Reliability Corporation (NERC), Western Electric Coordinating Council (WECC), and California Independent System Operator (CAISO)
- Provide substation and circuit tie capacity that would provide additional reliability for existing and future system needs

- Reduce loading on area substations to optimum operating conditions, providing greater operational flexibility to transfer load between substations within the proposed substation service territory
- Comply with and respect the outcome of the extensive community-based public process to select a site for a new substation in the Otay Ranch area, as evidenced by City of Chula Vista City Council Resolution 2011-073
- Meet proposed project needs while minimizing environmental impacts by siting the substation on property designated for future development that is located outside of the City of Chula Vista's Multiple Species Conservation Program (MSCP) Preserve
- Locate proposed new power facilities, as appropriate and as needed, within existing utility right-of-ways (ROWs), access roads, and utility-owned property

2.2.2 Basic Project Objectives – as Defined by the CEQA Team

The CPUC requested additional technical data from SDG&E and conducted an independent assessment to better define the basic objectives of the proposed project for use in the alternatives screening process. The basic objectives identified by the CPUC based on the technical data and additional analyses are to:

- Meet the electric distribution capacity needs in the southeastern Chula Vista service territory
- Provide substation and circuit tie capacity that would provide additional reliability for existing and future system needs
- Reduce loading on area substations to optimum operating conditions, providing greater operational flexibility to transfer load between substations

2.3 EXISTING POWER NETWORK

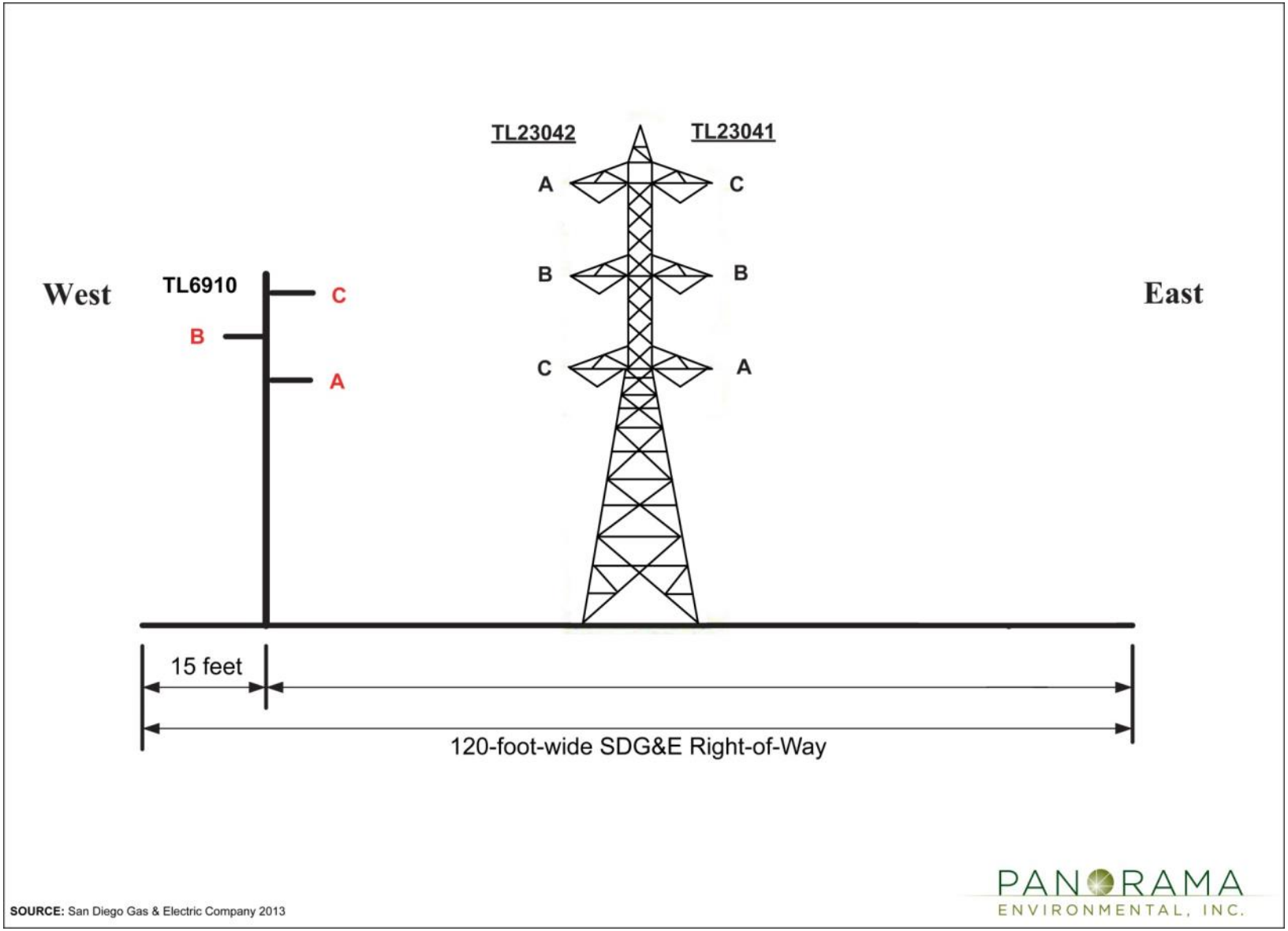
2.3.1 Transmission Circuits

One overhead power line and two transmission lines are currently located in the transmission corridor between Miguel Substation and the proposed substation site. The overhead power line and transmission lines consist of one 69-kV circuit (TL 6910) and two 230-kV circuits (TL 23041 and TL 23042). TL 6910 connects Miguel Substation to Border Substation in Otay Mesa. TL 23041 and TL 23042 connect Miguel Substation to Otay Mesa Substation. TL 6910 is located on a combination of wood and steel poles on the west side of the transmission corridor, and TL 23041 and TL 23042 are located on a steel lattice tower in the center of the transmission corridor (Figure 2.3-1).

2.3.2 Substations

SDG&E currently operates two substations in the southeast Chula Vista area: Proctor Valley Substation and Telegraph Canyon Substation. Residential and commercial growth in the area has brought Telegraph Canyon Substation to full capacity. The planned load for the 10-year planning horizon for southeast Chula Vista is 286 megawatts (MW), which exceeds the capacity

Figure 2.3-1 Existing Transmission System



for Telegraph Canyon Substation and Proctor Valley Substation. The 2016 substation forecast predicts Telegraph Canyon Substation will be loaded at 86 percent with all four transformer banks in service and Proctor Valley Substation will be loaded at 90 percent with two transformer banks in service. A reserve capacity of 15 to 20 percent is desired for each substation to handle outages and routine maintenance by transferring load to avoid disruption of customer service. This reserve capacity is not possible with only the two existing substations.

2.4 PROJECT LOCATION

The proposed project is located in southwest San Diego County (Figure 2.4-1). The proposed substation and the majority of the proposed power line are located in the eastern portion of the City of Chula Vista. A small segment (approximately 4,700 linear feet) of the proposed power line is located on SDG&E fee-owned land at Miguel Substation within an unincorporated portion of San Diego County.

The primary project areas are:

- Proposed substation site
- Transmission corridor
- Miguel Substation
- Temporary work spaces/staging yards

Locations of project elements are shown on Figure 2.4-2.

2.5 RIGHT-OF-WAY AND LAND DISTURBANCE

The proposed project would be developed on land that is either already owned by SDG&E, within existing SDG&E easements, or within public ROW. No permanent land acquisition or new easements would be required to implement the project. All permanent project facilities would be located within the proposed substation parcel, SDG&E's transmission corridor, Miguel Substation, or existing easements and public ROW at Hunte Parkway. SDG&E purchased the 11.64-acre parcel for the proposed substation in June 2011. SDG&E has an existing 120-foot-wide ROW within the transmission corridor. Miguel Substation is located on SDG&E fee-owned land.

Approximately 33.64 acres would be temporarily disturbed and 13.23 acres would be permanently disturbed during project construction. Areas of project disturbance are summarized in Table 2.5-1. The disturbance areas in Table 2.5-1 include a buffer from the SDG&E proposed work area to account for vehicle access and turn around at the work areas. The buffers around the work areas that were applied by the CPUC are provided in Table 2.5-2.

Figure 2.4-1 Project Location

Figure 2.4-2 Project Areas

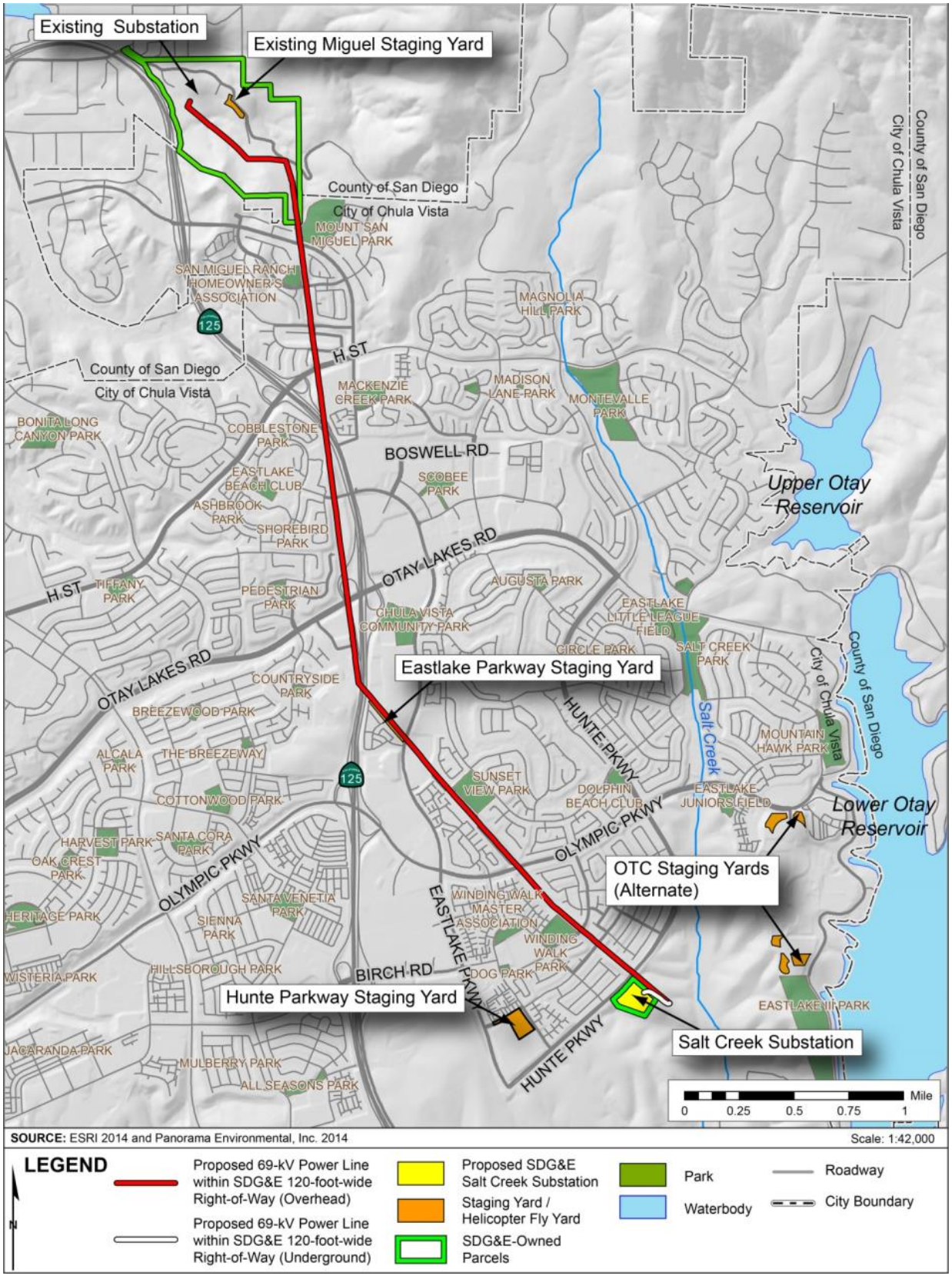


Table 2.5-1 Areas of Temporary and Permanent Project Disturbance

Proposed Project Component	Permanently Disturbed Area[1]		Additional Temporarily Disturbed Area[1]		Total Disturbance Area[1]	
	Square Feet	Acres	Square Feet	Acres	Square Feet	Acres
Proposed Substation						
Substation and access road (includes 12-kV distribution and 69-kV underground duct packages for TL 6965 and TL 6910 within the substation property)	362,700	8.33	73,100	1.68	435,800	10.01
Driveway and access road to Hunte Parkway (includes 12-kV distribution duct packages to Hunte Parkway outside of the substation property)	18,700	0.43	7,000	0.16	25,600	0.59
Drainage to discharge at existing dissipator (outside of the substation property)	500	0.01	2,200	0.05	2,700	0.06
Substation Subtotal	*381,900*	*8.77*	*82,300*	*1.89*	*464,100*	*10.66*
TL 6965						
TL 6965 permanent work pad/modified access roads	52,400	1.20	112,400	2.58	164,800	3.78
Poles/work areas	87,200	2.00	117,200	2.69	204,400	4.69
Overland access roads	0	0	7,400	0.17	7,500	0.17
Footpaths	0	0	1,300	0.03	1,300	0.03
New access roads	4,000	0.09	0	0	4,000	0.09
Vehicle passing areas	0	0	4,500	0.10	4,500	0.10
Vehicle turnaround areas	0	0	16,700	0.38	17,000	0.39
TL 6965 underground grading and access (in transmission corridor; includes cable poles 1, 43, and 44, and a portion of TL 6910 loop-in)	50,700	1.16	32,500	0.75	83,200	1.91
Stringing sites	0	0	57,300	1.32	57,300	1.32
Guard structures	0	0	2,736	0.06	2,736	0.06
Alternating current (AC) features	96	0	200,876	4.61	200,972	4.61
TL 6965 Subtotal	*194,396*	*4.45*	*552,912*	*12.69*	*747,708*	*17.15*

Proposed Project Component	Permanently Disturbed Area[1]		Additional Temporarily Disturbed Area[1]		Total Disturbance Area[1]	
	Square Feet	Acres	Square Feet	Acres	Square Feet	Acres
Miguel Substation Modifications						
69-kV rack extension and 69-kV circuit breaker foundations	200	0.005	0	0	200	0.005
Staging Yards						
Hunte Parkway	0	0	283,140	6.5	283,140	6.5
Miguel Substation	0	0	82,300	1.89	82,300	1.89
Eastlake Parkway	0	0	73,600	1.69	73,600	1.69
OTC[2]	0	0	412,900	9.48	412,900	9.48
Staging Yards Subtotal	*0*	*0*	*830,200*	*19.56*	*830,200*	*19.56*
TOTAL	**576,496**	**13.23**	**1,481,116**	**34.14**	**2,063,948**	**47.37**

Notes:

1 Based on preliminary engineering. Estimates may change based on final design and construction.

2 Alternate staging yard sites are not proposed for use at this time and would involve a commensurate reduction in square footage at the three proposed staging yards, depending on circumstances at the time of construction.

Source: SDG&E 2013a

Table 2.5-2: Buffer Areas around Work Areas

Work Area	Buffer (feet)
Work pads	10
Directly embedded poles	10
Engineered foundations steel poles (temporary)	37.5
Engineered foundation steel poles (permanent)	4
Cable pole (temporary)	75
Cable pole (permanent)	4
Overland travel (temporary)	6

2.6 PROJECT COMPONENTS

The proposed project components are shown on Figures 2.6-1 through 2.6-11 and consist of:

- Proposed Salt Creek substation
- TL 6965
- Modifications at Miguel Substation

Each project component is described in further detail below. Temporary work areas that would be used during project construction are also shown on Figures 2.6-1 through 2.6-11. Temporary work areas including staging areas are described further in Section 2.7.

2.6.1 Proposed Salt Creek Substation

Substation Equipment

The proposed project would include construction and operation of the 69/12-kV proposed Salt Creek substation. The proposed substation would be unattended and automated. The preliminary substation layout is provided on Figure 2.6-12. The proposed substation facilities consist of:

- Two 69/12-kV low-profile 30-MVA transformer banks
- Steel 69-kV bus and associated disconnects
- Six 69-kV gas circuit breakers
- 12-kV switchgear with four 12-kV circuit positions each
- Two 12-kV metal-enclosed capacitor banks
- 69-kV and 12-kV associated relays, controls, and station batteries inside a 40-foot-long by 20-foot-wide enclosed, all-weather structure
- Three 69-kV power lines (TL 6910, TL 6964, and TL 6965)
- Three distribution circuits
- Microwave dish

Additional facilities located inside the enclosed, all-weather structure would include metering, Supervisory Control and Data Acquisition (SCADA), security, and communications equipment. The approximately 2.4-acre substation pad would be covered with gravel. A 10- to 12-foot-high masonry wall would enclose the substation.

Substation Infrastructure

Oil Containment Basin

A concrete containment basin would provide oil containment for the entire substation facility. Secondary containment would also be provided around each transformer. The containment system would hold the total volume of oil from the transformers, the largest oil-containing substation equipment. Each of the two transformers would require a maximum of 5,500 gallons of oil.

Figure 2.6-1 Project Components (Map 1 of 11)

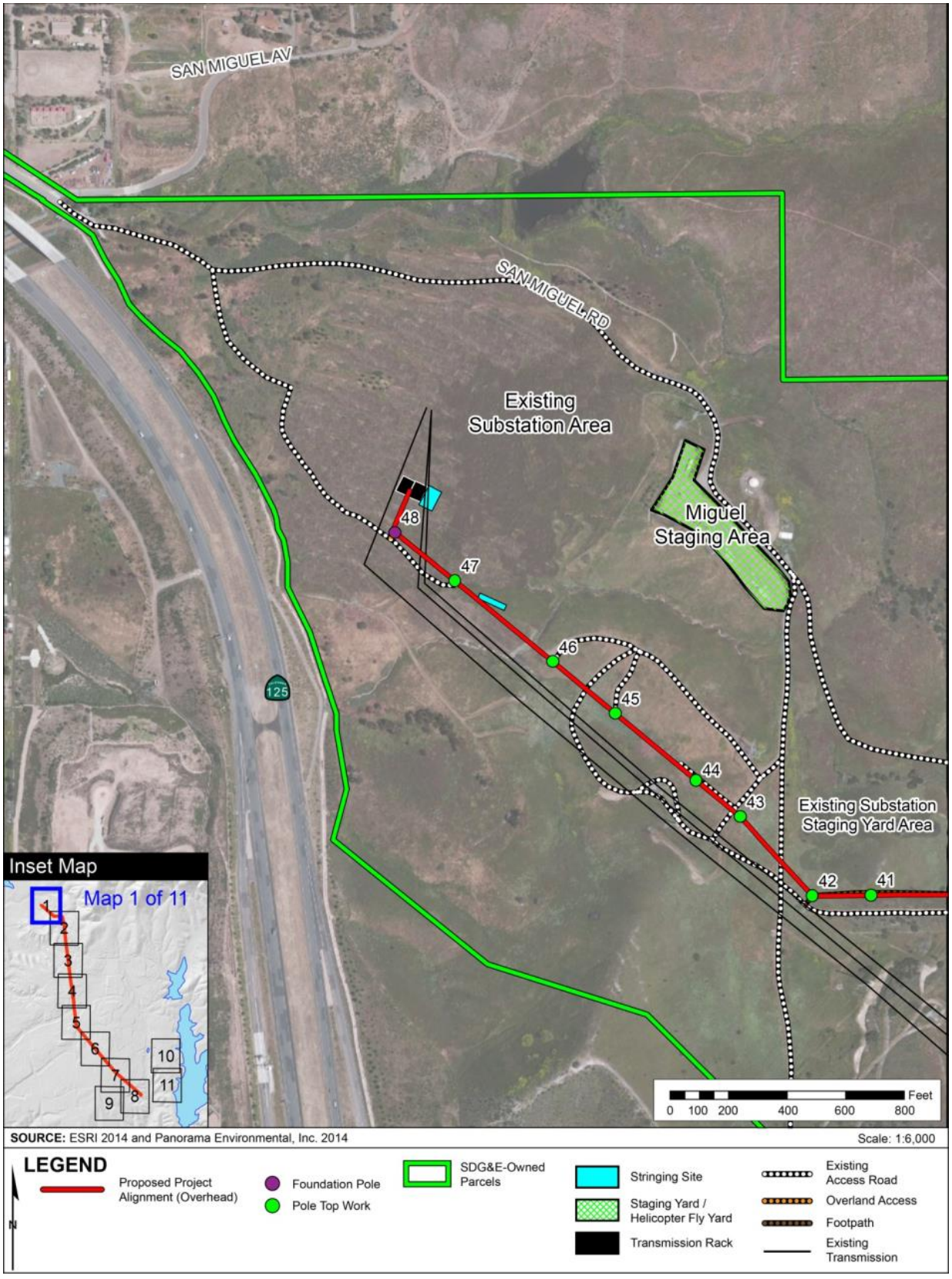


Figure 2.6-2 Project Components (Map 2 of 11)

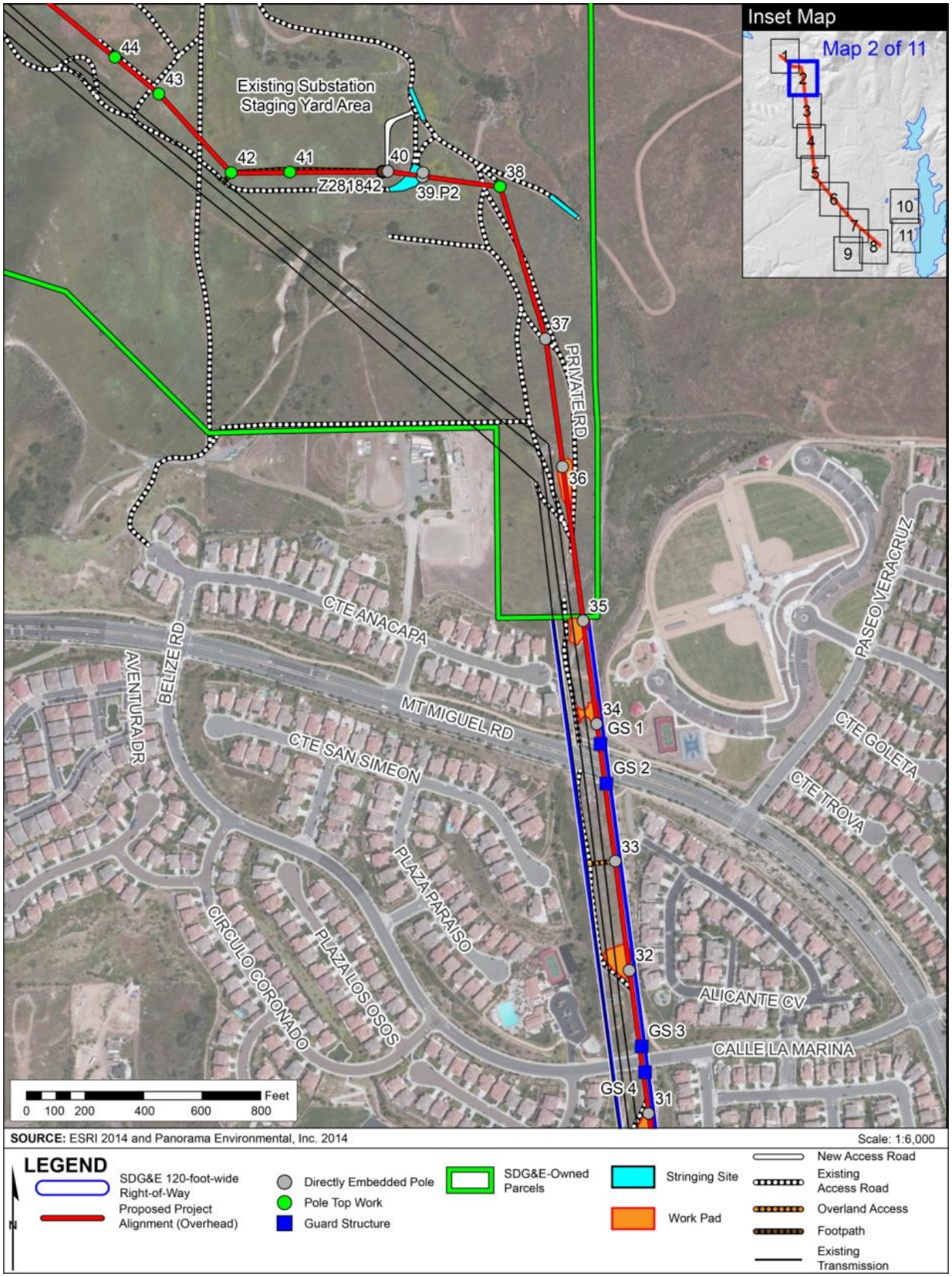


Figure 2.6-3 Project Components (Map 3 of 11)

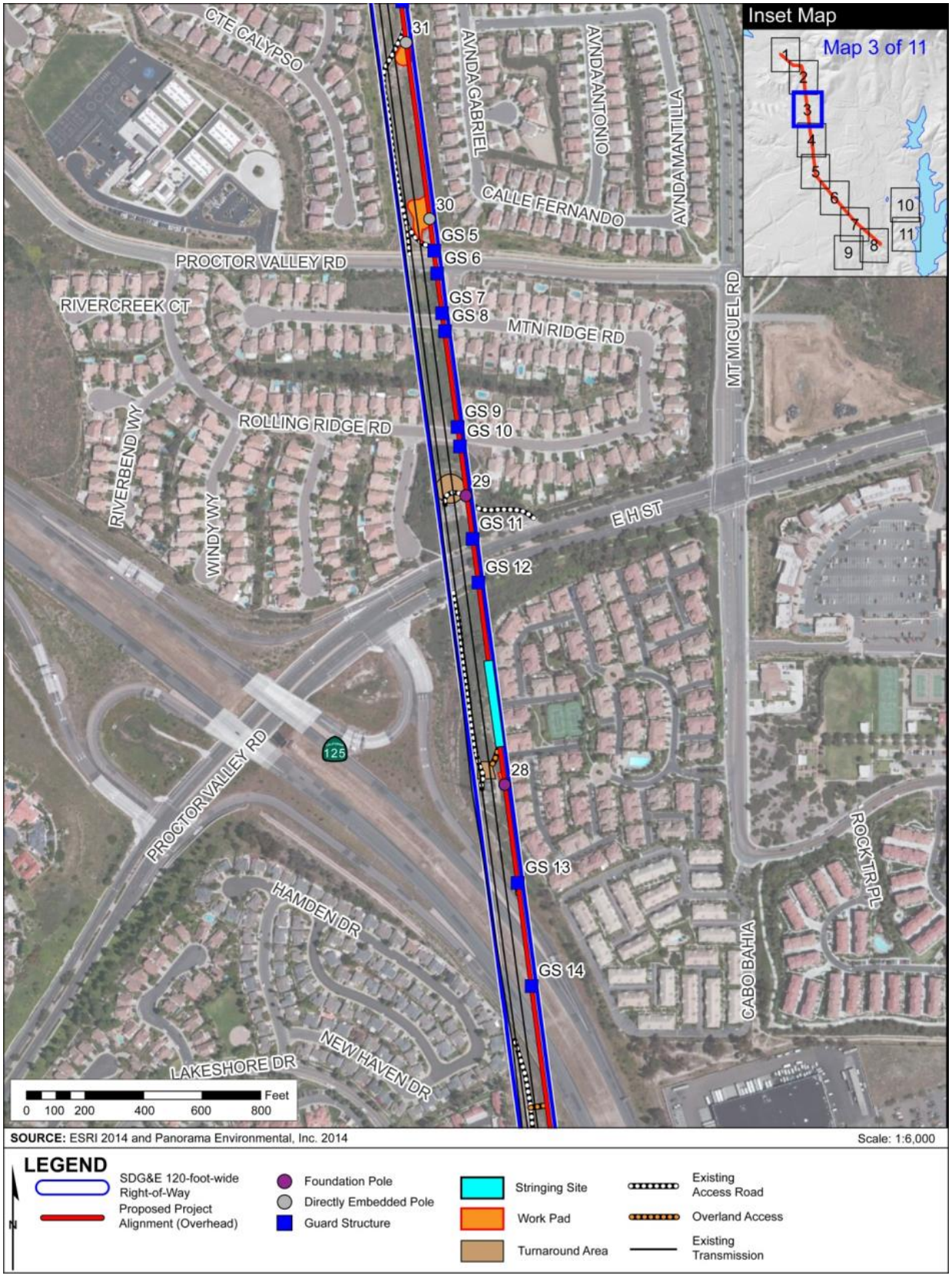


Figure 2.6-4 Project Components (Map 4 of 11)

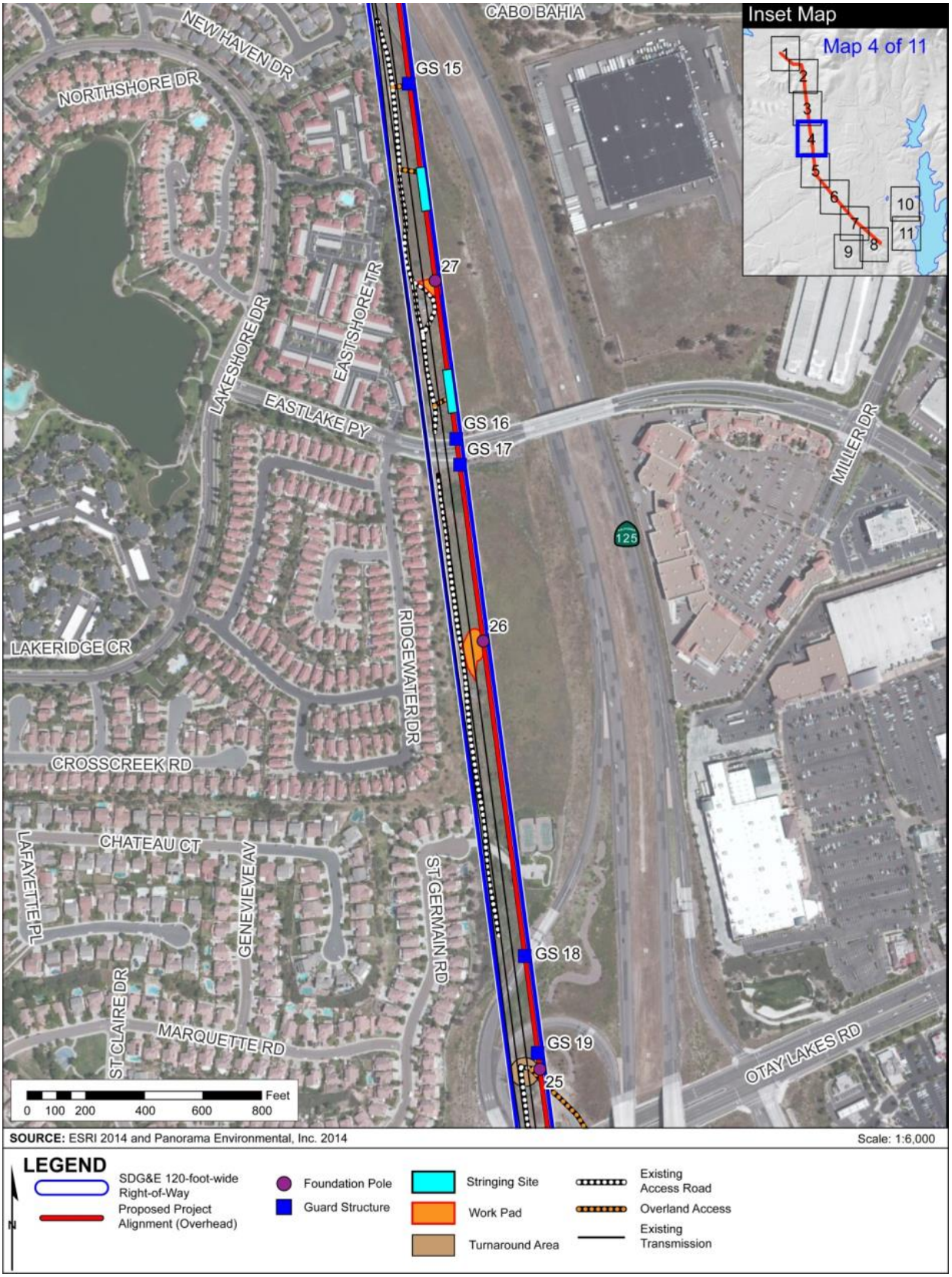


Figure 2.6-5 Project Components (Map 5 of 11)

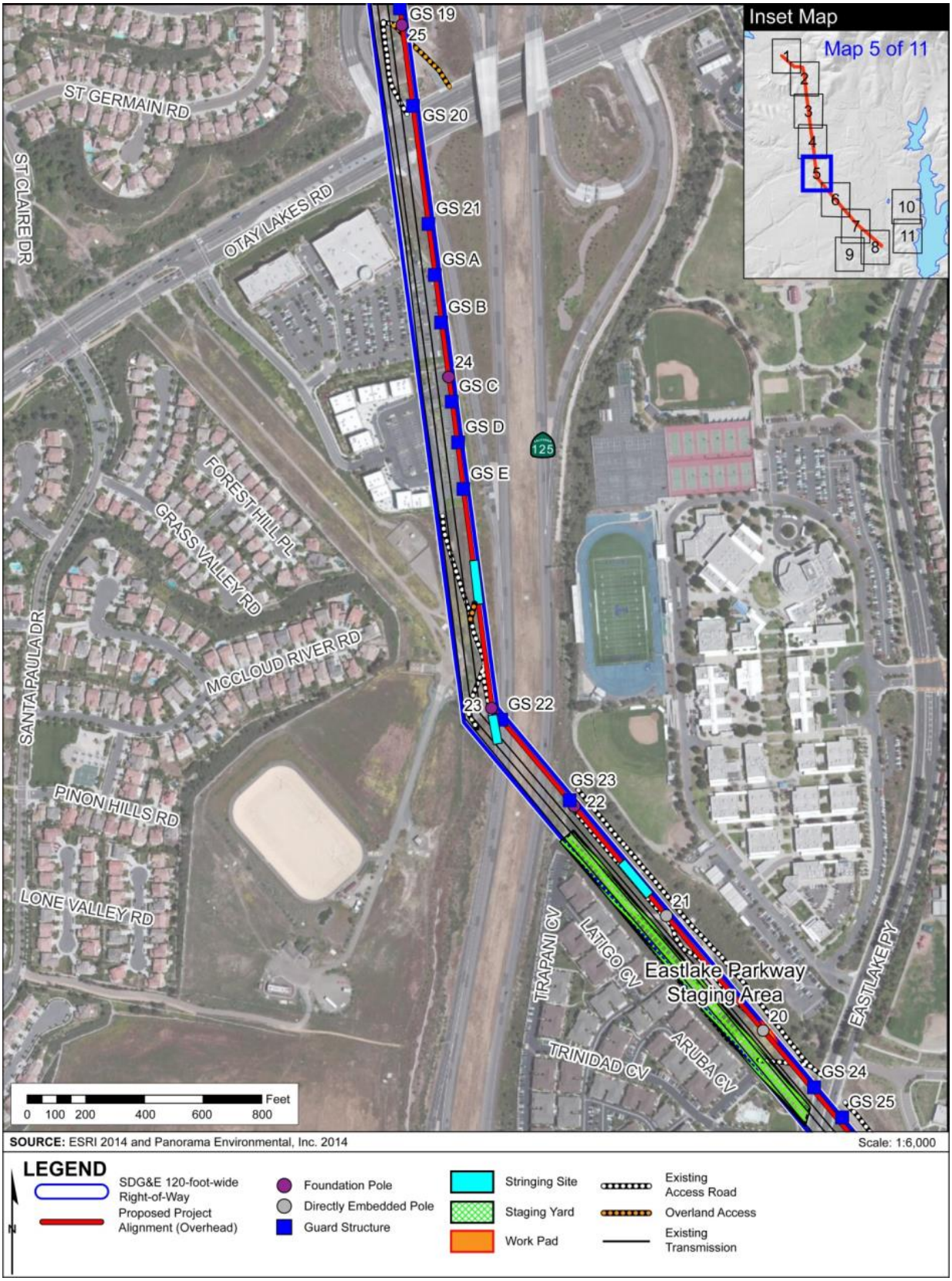


Figure 2.6-6 Project Components (Map 6 of 11)

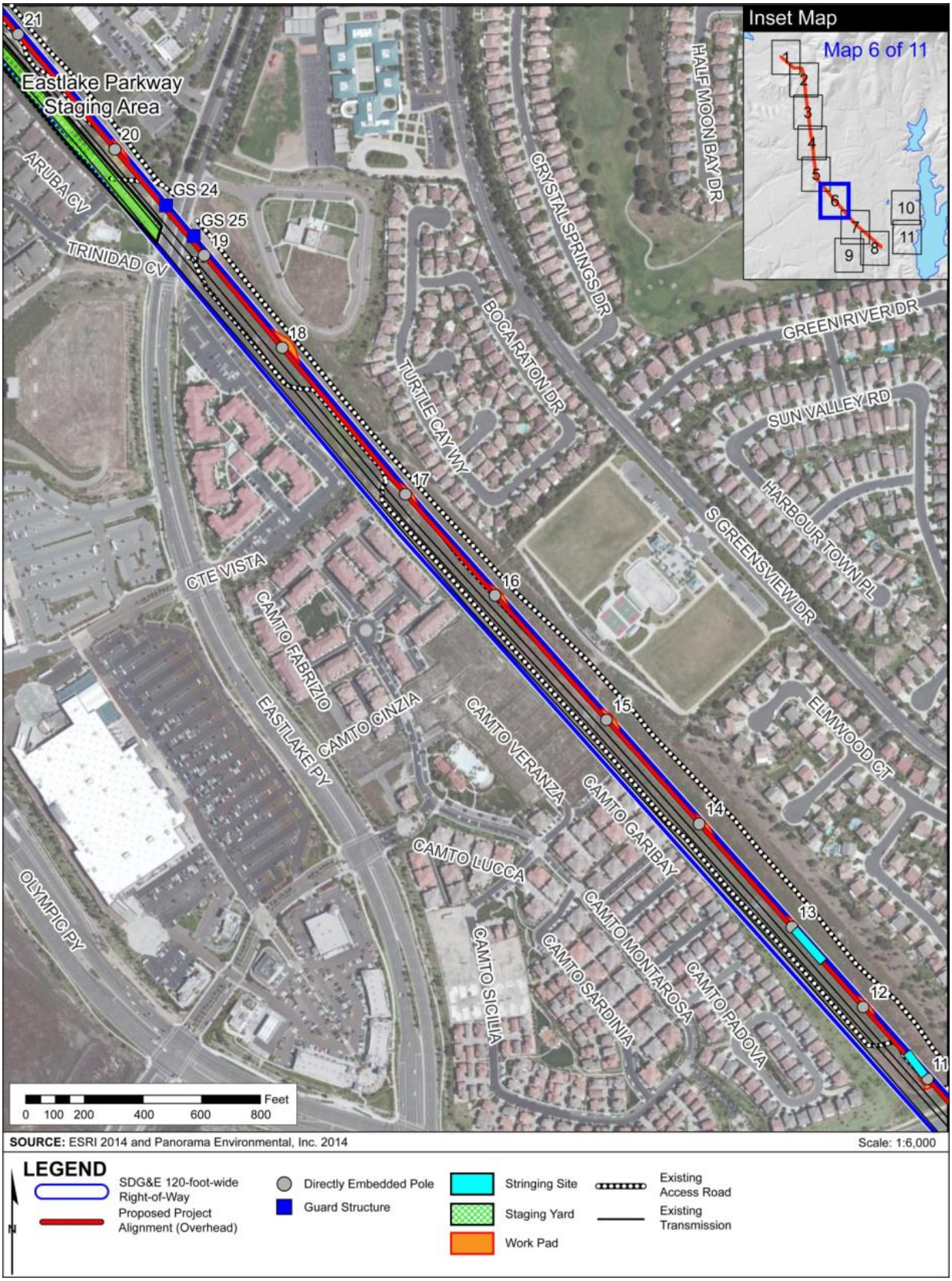


Figure 2.6-7 Project Components (Map 7 of 11)

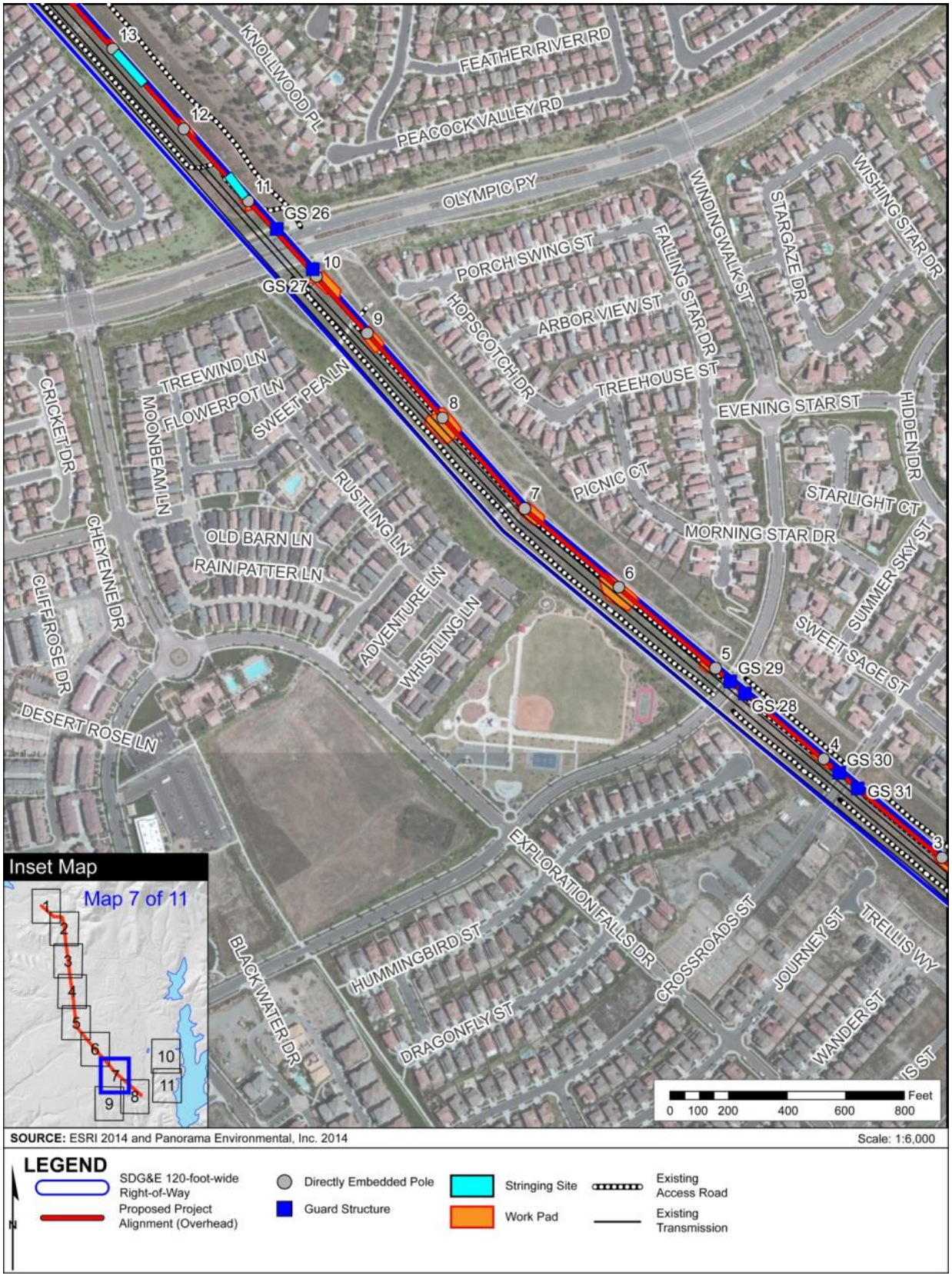


Figure 2.6-8 Project Components (Map 8 of 11)

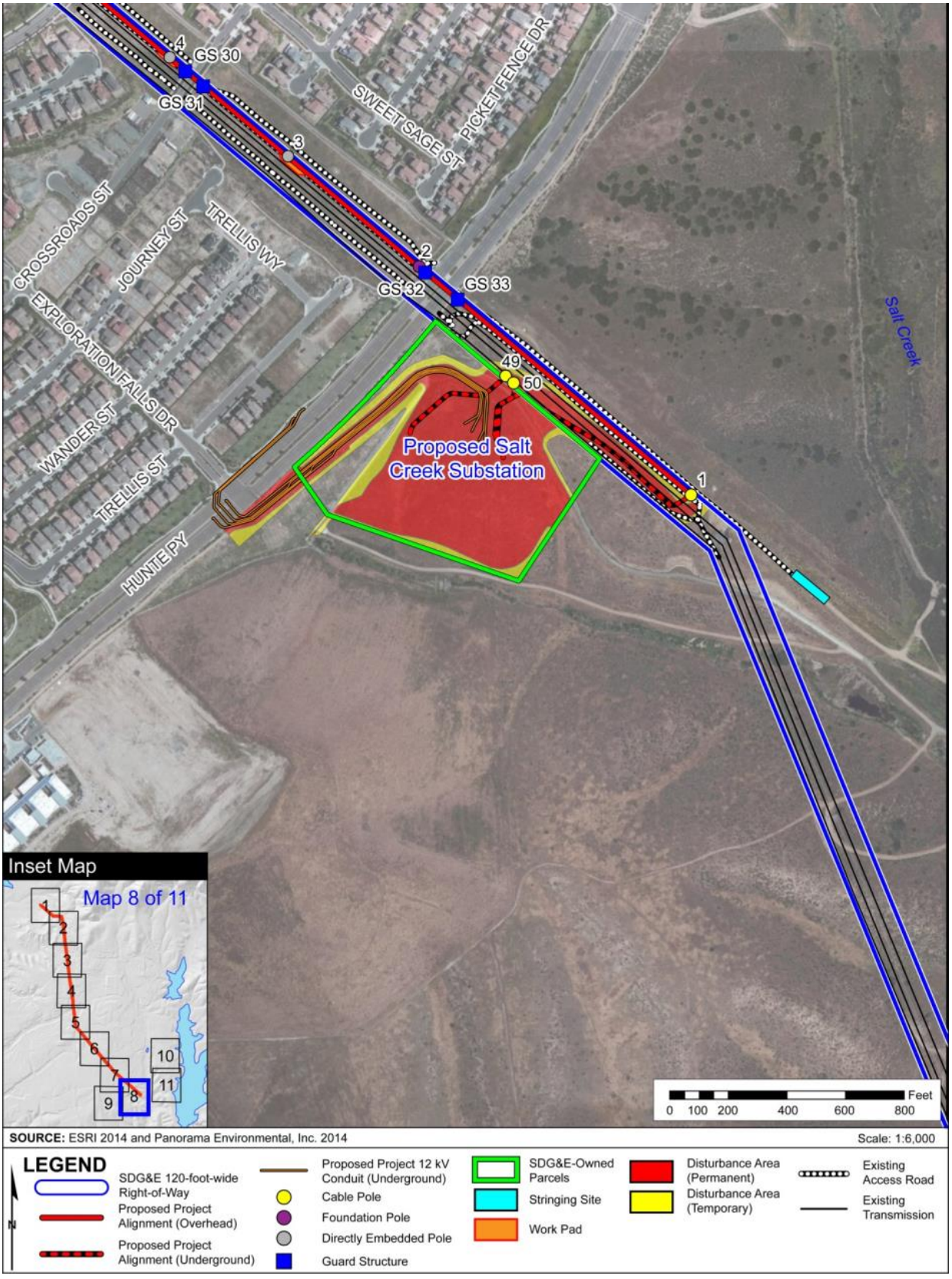


Figure 2.6-9 Project Components (Map 9 of 11)

Figure 2.6-10 Project Components (Map 10 of 11)

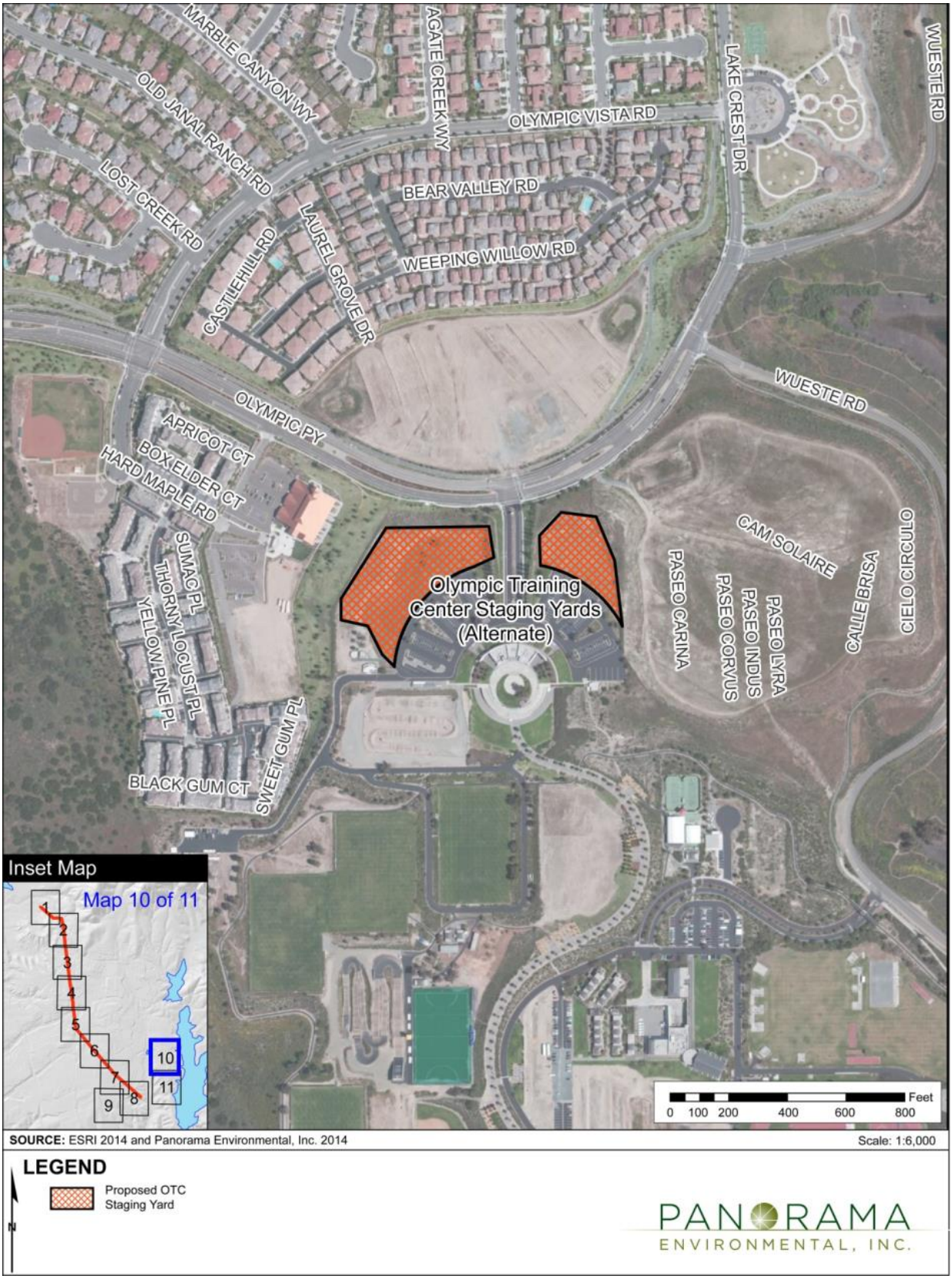


Figure 2.6-11 Project Components (Map 11 of 11)

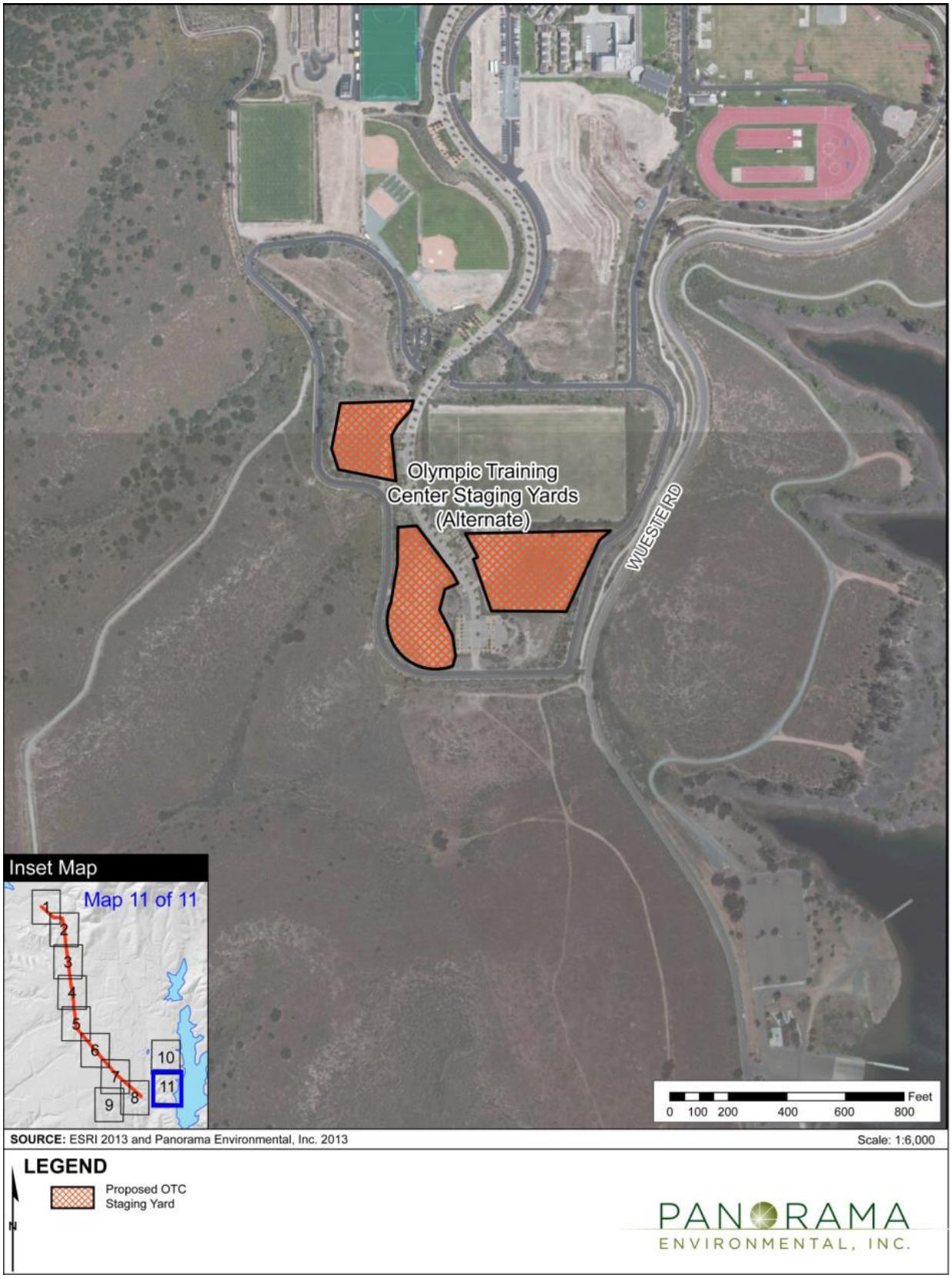
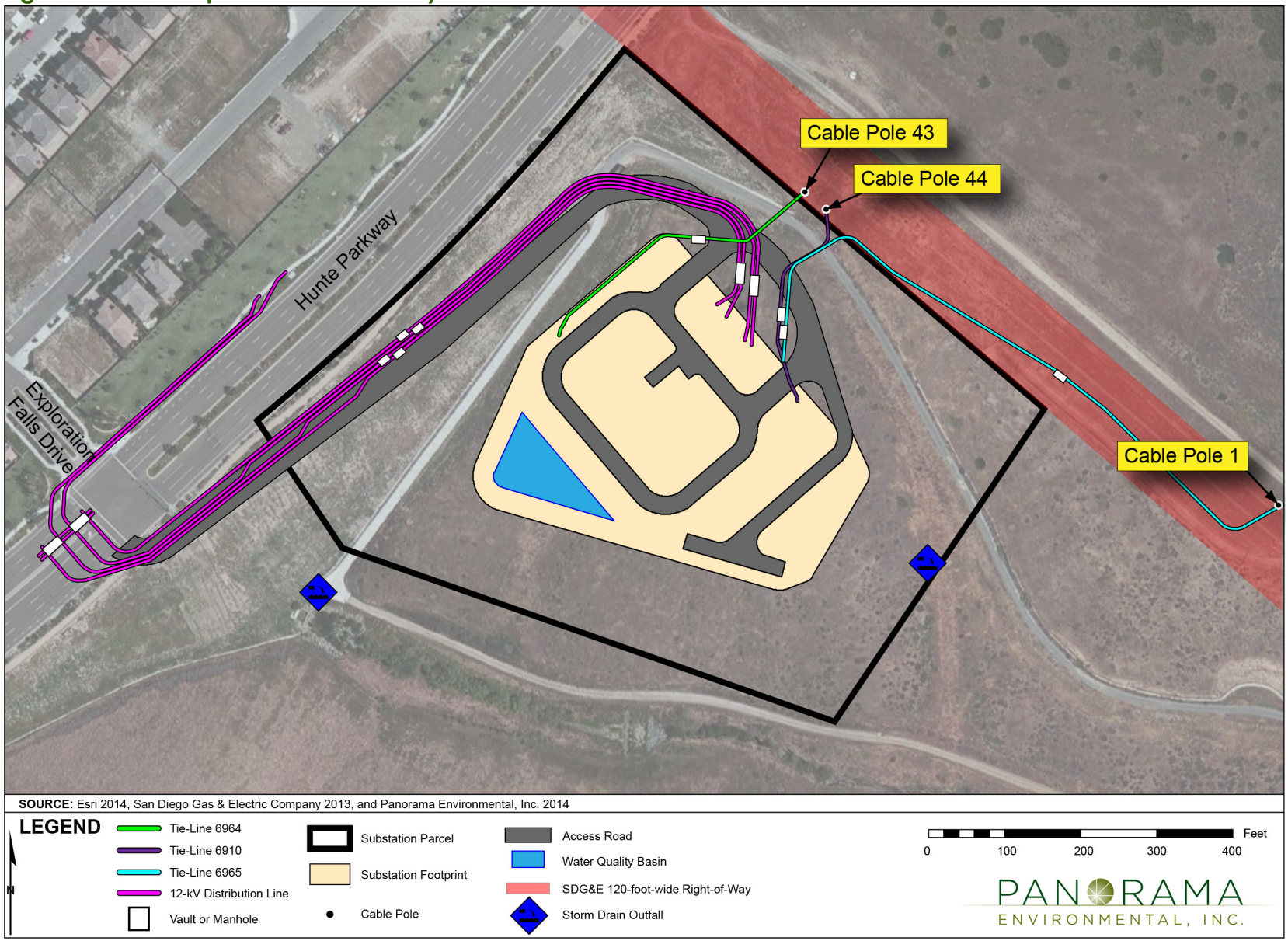


Figure 2.6-12 Proposed Substation Layout



Water Quality Detention Basin
A detention basin is proposed in the southwest corner of the substation pad, outside the substation wall. The detention basin would be designed to meet SDRWQCB and City objectives for volume, area, depth, and detention time. The preliminary design includes a 4-foot-deep detention basin covering 15,500 square feet, a detention volume of approximately 49,700 cubic feet, and 3:1 side slopes. The basin size and dimensions may be modified during final design and to meet SDRWQCB and City of Chula Vista requirements. SDG&E would calculate the required hydromodification area to define the size of the water quality detention basin, consistent with City requirements.

Lighting
Lighting at the proposed substation would follow SDG&E lighting standards. Lighting would be used to provide a safe entry to and exit from the substation; to allow for safe driving around buses/racks, corners, and roadways; and to allow for a preliminary visual inspection of the substation.

A mixture of high-pressure sodium (typically used for gate entry lights) and metal halide lights may be used. One light would be installed at the main gate, one light would be installed on each side of the enclosed all-weather structure, and a minimum of two lights would be installed on each substation wall. Lights may also be installed on the end of the steel rack, if required. Lights would be shielded and pointed down to minimize glare onto surrounding properties and natural habitats. Lights would not be left on at night, with the exceptions of the light at the main gate and lighting required for nighttime work and/or an emergency.

Security Gates
Two 8-foot-tall chain-link gates would provide access to the substation from the existing sewer access road extending to the substation from Hunte Parkway. The gates would be locked and monitored remotely to restrict access. Warning signs would be posted in accordance with SDG&E guidelines. The perimeter masonry wall and gates would be consistent with SDG&E's operational and safety guidelines.

Distribution Circuits
Three new distribution circuits would extend underground from the proposed substation to intercept existing distribution circuits in Hunte Parkway and adjacent streets. The underground circuits would be routed along and within the substation driveway/sewer access road to Hunte Parkway. Load would be transferred from existing circuits to the proposed substation circuits. Manhole racking, terminations, and approximately 1,400 feet of thousand-circular-mils copper underground cable would be required for each of the three initial distribution circuits. Up to 13 additional circuits (16 circuits total) could be installed from the proposed substation as the residential and commercial area load increases.

Four 12-kV distribution duct packages would be installed between the proposed substation and Hunte Parkway to support up to sixteen 12-kV distribution circuits. Each duct package would consist of six 5-inch-diameter conduits arranged in two columns, spaced vertically and horizontally from the conduit centerline by 7.5 inches. The horizontal separation between

adjacent duct packages would be 5 feet, from centerline to centerline. The duct packages would have a standard depth of approximately 5 feet (Figure 2.6-13). A concrete slurry mix would be installed to protect each duct package.

A 12-kV distribution manhole/vault would be installed in each distribution duct; two manholes/vaults would be installed in the improved substation access road and two distribution manholes/vaults would be installed in Hunte Parkway (Figure 2.6-12). Additional manholes/vaults may be added as needed within the improved substation access road and Hunte Parkway. The distribution manholes/vaults measure approximately 9 feet wide, 21 feet long, and 13 feet deep.

TL 6910 Loop-in

TL 6910 is an existing overhead 69-kV power line that extends approximately 10 miles between Miguel Substation and Border Substation within the transmission corridor adjacent to the proposed substation. SDG&E proposes to loop-in TL 6910 to the proposed substation, as shown on Figure 2.6-12. The portion of TL 6910 between Border Substation and the proposed substation would retain the TL 6910 designation. The portion of TL 6910 between the proposed substation and Miguel Substation would carry the new designation TL 6964.

Two cable poles (approximately 86 feet high) would be erected within the transmission corridor to loop-in TL 6910 to the proposed substation. Two approximately 300-foot-long underground duct packages would be installed between each cable pole and the proposed substation. A 69-kV vault, associated vault racking, underground cable, cable joints, and terminations would be installed along each 69-kV underground duct alignment. Each 69-kV duct package would have a standard depth of approximately 6 to 9 feet. A typical cross-section of the 69-kV underground duct bank is shown on Figure 2.6-14.

Telecommunications

A fiber-optic telecommunication cable would enter the proposed substation via the TL 6910 underground duct package, and an AT&T telecom circuit would be installed in underground conduit between Hunte Parkway and the substation. The fiber-optic cable would be installed in the new conduit from the proposed TL 6910 cable pole to the proposed substation. The fiber-optic cable would be up to 1,200 feet in length. AT&T would install a telecom circuit in the underground conduit from the nearest AT&T telecom circuit on Hunte Parkway to the substation all-weather control structure. SDG&E would install a 4-inch conduit within the distribution duct package between Hunt Parkway and the proposed substation that may be used for the installation of the telecom circuit.

SDG&E would also install a microwave dish. The microwave dish for the proposed substation would be approximately 3 feet in diameter and would be mounted on a dull galvanized steel pole within the substation. The pole would be approximately 20 feet tall from ground level and 20 inches in diameter. The microwave dish would face southeast toward Otay Mountain.

Figure 2.6-13 12-kV Underground Duct Bank

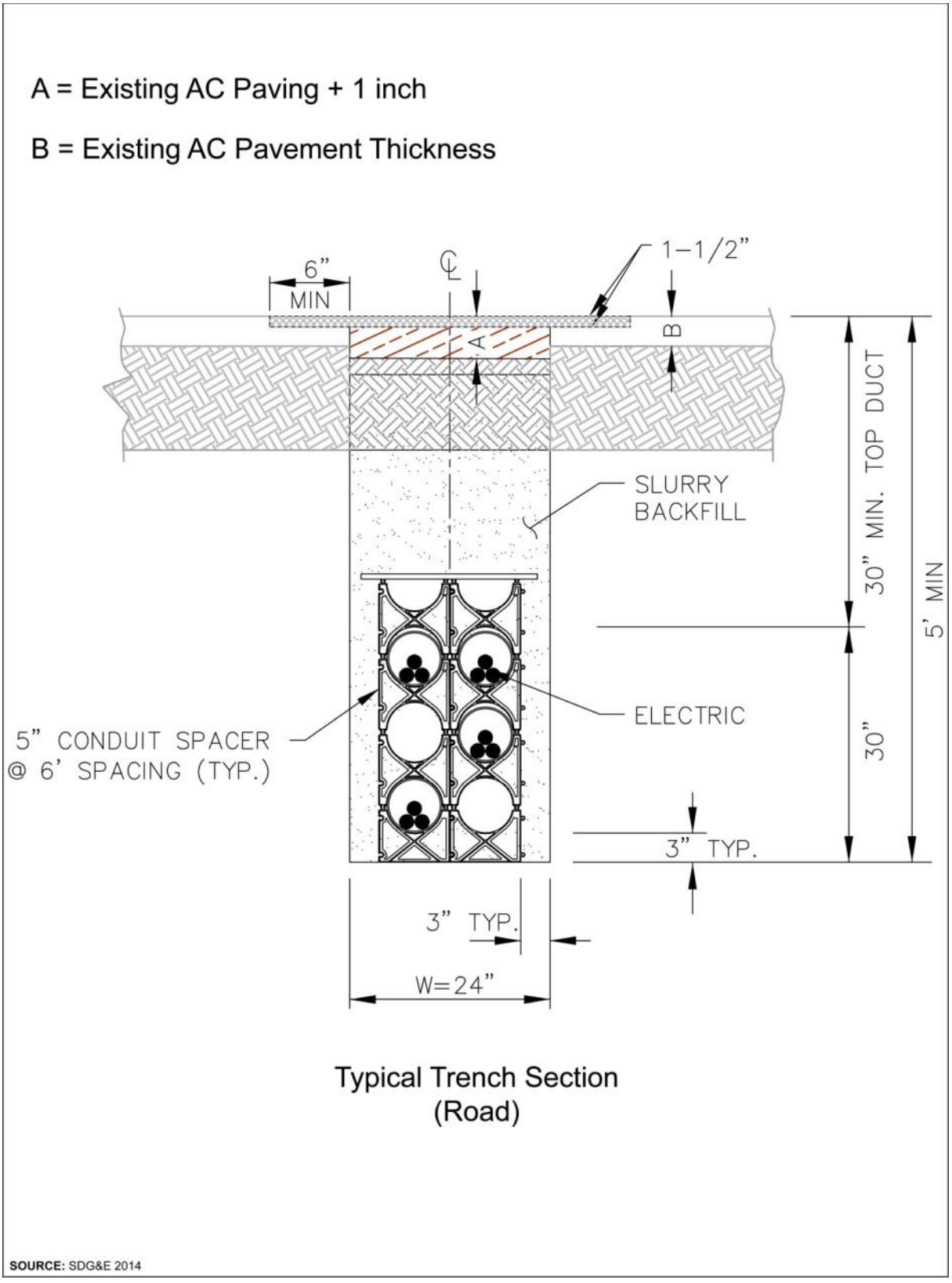
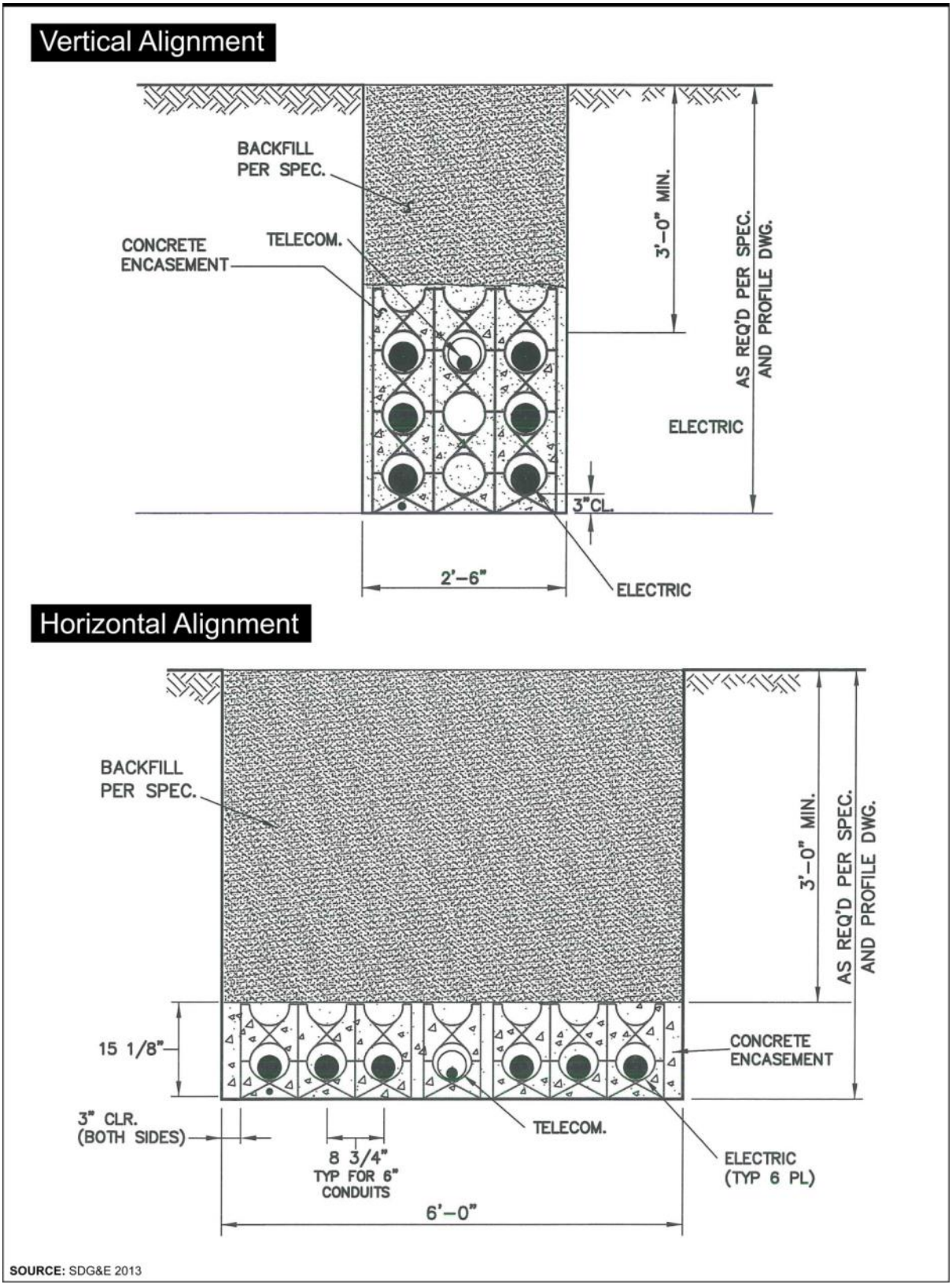


Figure 2.6-14 69-kV Underground Duct Bank



SOURCE: SDG&E 2013

2.6.2 TL 6965

TL 6965 would be approximately 5 miles long, extending from Miguel Substation to the proposed substation, as shown on Figures 2.6-1 through 2.6-8. The proposed location of TL 6965 is within the transmission corridor, approximately 15 feet from the eastern edge of SDG&E's ROW and 45 feet west of the ROW centerline.

Power Poles

TL 6965 would use approximately 49 poles, including eight existing poles within the Miguel Substation property (seven associated with TL 643 and one associated with TL 6910). Approximately 41 new dulled, galvanized steel power poles would be erected along the TL 6965 alignment within the transmission corridor. The new poles consist of the following pole types:

- 30 directly embedded galvanized steel poles (29 pole structures, including one two-pole H-frame structure)
- Ten galvanized engineered foundation poles
- One engineered foundation cable pole

Drawings of typical directly embedded steel pole, engineered foundation pole, and cable pole structures are provided on Figure 2.6-15. The double-circuit configuration would be used at the eight existing poles (TL 643 and TL 6910) where the TL 6965 circuit would be added. All transmission poles meet raptor safety requirements because of phase spacing requirements.

Light-duty Directly Embedded Steel Poles

Directly embedded, galvanized steel poles would be used for tangent structures where the power line is generally straight. Light-duty, directly embedded steel poles would be installed in the soil and secured using concrete backfill. The poles would extend approximately 34 to 70 feet above grade. The pole diameter at ground level would be approximately 16 to 28 inches, requiring a hole that is approximately 40 to 52 inches in diameter and 6 to 17 feet deep.

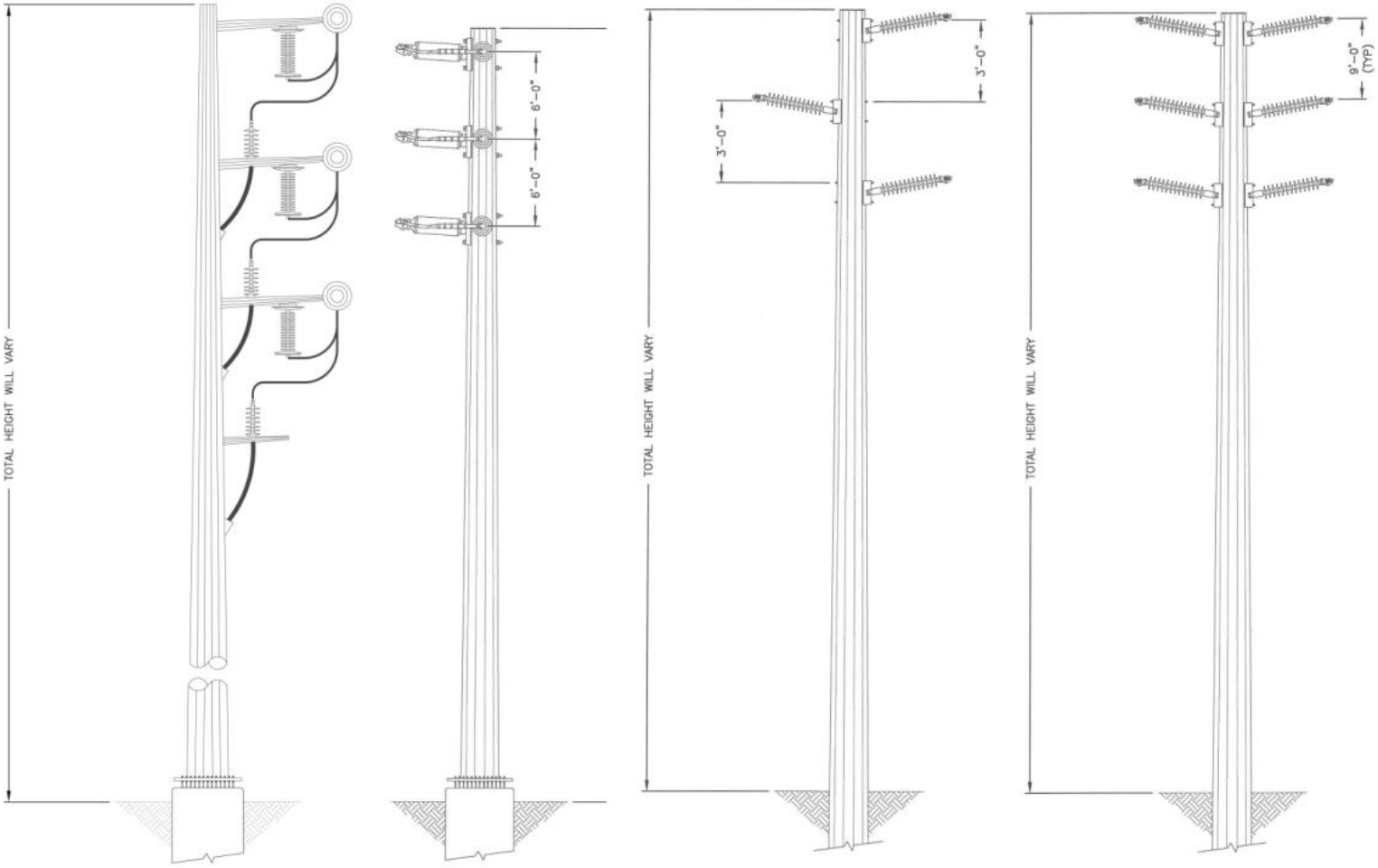
Engineered Foundation Steel Poles

Engineered poles would be used for sharp angles and freeway crossings. Heavy-duty engineered steel poles would be bolted to a reinforced concrete pier foundation. The concrete foundation would extend approximately 2 feet above grade. The poles would extend approximately 58 to 123 feet above grade. The engineered pole foundation at ground level would be approximately 6 to 7 feet in diameter.

Cable Pole

An engineered cable pole would be required where the power line transitions from overhead to underground adjacent to the proposed substation. The cable pole would be a heavy-duty, engineered steel pole bolted to a reinforced concrete pier foundation with underground connections. The concrete foundation would extend approximately 2 feet above grade. The cable pole for TL 6965 would extend approximately 103 feet above grade. The pole foundation at ground level would be approximately 6 to 8 feet in diameter. The cable pole would include a trench from the pole base to the associated underground package.

Figure 2.6-15 Typical TL 6965 Pole Details



Typical Engineering Foundation Cable Pole (69-kV)

Typical Single-Circuit Engineering Foundation Pole (69-kV)

Typical Directly Embedded Single-Circuit Pole (69-kV)

Typical Directly Embedded Double-Circuit Pole (69-kV)

SOURCE: San Diego Gas & Electric Company 2013

Work Pads

Permanent work pads are required at approximately 26 pole locations to provide a safe work area, for access during construction, and for post-construction operations and maintenance work. The permanent work pads for TL 6965 and access road adjustments would occupy approximately 1.2 acres.

Underground Duct Bank

An approximately 720-foot-long underground duct would contain TL 6965 between the cable pole and the substation rack. The duct bank would contain six 6-inch-diameter conduits for transmission and one 4-inch-diameter conduit for telecommunications cable. The underground duct would measure approximately 30 inches wide by 33 inches high for a vertical configuration, or 72 inches wide by 15 inches high for a horizontal configuration as shown on Figure 2.6-14. Approximately six vaults (additional vaults may be added as needed) would be installed to connect and join the underground cables. Underground vaults would be approximately 9.5 feet wide, 17.5 feet long, and 11 feet deep.

Conductors

Conductors would be located on the steel poles and in the underground duct banks connecting to the proposed substation. Electrical circuits typically consist of three phases, with one conductor per phase. A total of three conductors would be installed on TL 6965 power poles. The conductor span lengths between poles would range from approximately 250 to 2,000 feet. Typically, 69-kV steel poles have three post insulators to carry conductors and three post insulators and six suspension insulators at sharp angles. Conductors would be supported by each insulator. Insulators would be made of grey polymer and overhead conductors would be made of dulled aluminum. The underground conductors would be made of cross-linked polyethylene cable.

Alternating Current Features

The proposed TL 6965 power line would be located within proximity of two SDG&E gas pipelines: a 36-inch-diameter pipeline and a 4-inch-diameter pipeline. SDG&E anticipates the 4-inch gas pipeline would be removed within the next 2 years (i.e., 2016 and 2017). Gradient control wires and gradient control mats would be installed on the ~~existing~~ gas pipelines that would be in place after energization of the power line to reduce AC interference effects and fault conditions from TL 6965. Up to ~~S~~seven gradient control mats (ground mats) and six gradient control wires (zinc ribbon anode or equivalent) would be installed on the gas pipelines via solid-state decoupling devices. Ground mats would be installed at up to six test station locations and one valve location. Four gradient control wires would be installed on the 36-inch-diameter gas pipeline and two gradient control wires would be installed on the 4-inch-diameter gas pipeline if the gas pipeline is to be in place at the time of energization of TL 6965.

2.6.3 Miguel Substation Modifications

A new 69-kV circuit position would be installed at Miguel Substation for TL 6965. The circuit breaker for TL 6910 would be re-tagged with the designated circuit name TL 6964. TL 643 would be relocated to provide a circuit position for TL 6965.

The following modifications would be installed at Miguel Substation:

- Steel supports and associated bus work to extend the 69-kV rack
- Four 69-kV disconnect switches
- Two 69-kV gas circuit breakers
- Associated relays and controls

2.7 CONSTRUCTION ACTIVITIES

This section describes the following construction methods for the proposed project:

- AC features installation
- Concrete/aggregate/borrow materials
- Conductor installation
- Construction access
- Construction personnel and equipment
- Construction schedule
- Dewatering, drainage, erosion control, and water use
- Landscaping
- Post-construction restoration
- Power pole installation
- Substation construction
- Temporary work areas
- Traffic control
- Underground duct bank installation
- Vegetation clearing and grading
- Waste disposal

2.7.1 Vegetation Clearing and Grading

Proposed Substation

Vegetation would be cleared from approximately 10 acres of the proposed substation parcel. Vegetation and brush would be removed from the site and disposed of at an appropriate landfill (see Section 2.7.11).

SDG&E would conduct remedial grading (removal of colluvium and alluvium) and mass grading to create the substation pad and improve the existing access road. Areas along the hillslope within the northern and eastern portions of the substation parcel would be cut and filled to create a flat substation pad. Earthwork for the substation pad and access road improvements would require remedial cut and fill of alluvium and colluvium and cut associated with trenching the 12-kV distribution lines and underground 69-kV lines. Up to approximately 21,600 cubic yards (CY) of structural fill and class 2 aggregate would be imported for construction. A summary of the anticipated grading quantities for the proposed substation is provided in Table 2.7-1.

TL 6965

Mowers would clear vegetation from all power pole work pads. Vegetation clearing may also occur along overland access roads and along existing access roads for access to the pole work areas. SDG&E may prune four to seven trees (including willow trees) and remove two fan palms located south of Pole 26 (Figure 2.6-4). SDG&E may also prune two pine trees and two palm trees located in backyards north of Proctor Valley Road. The removed material would be disposed of at an appropriate landfill.

Table 2.7-1 Grading Cut and Fill (Estimated)

Proposed Project Component	Earthwork Quantity (CY)[1]	
	Cut	Fill
Proposed Substation		
Substation and access road (on site)[2]	61,600	83,100
Driveway and access road to Hunte Parkway (off-site)[2]	100	800
Drainage to discharge at existing dissipater (off-site)[2]	100	100
TL 6965 and TL 6910 Loop-in		
TL 6965 (overhead)	2,500	1,400
TL 6965 underground trenching and access in transmission corridor (includes cable poles 1, 43, and 44 and the portion of TL 6910 loop-in within the transmission corridor)	4,000	0
Miguel Substation Modifications		
69-kV rack extension and 69-kV circuit breaker foundations	127	230
Staging Yards		
Hunte Parkway	30	30
Miguel Substation	N/A[3]	N/A[3]
Eastlake Parkway	1,300	600
OTC	N/A[3]	N/A[3]
AC Project Features		
Ground Mats	250	250
Zinc Ribbons	500	500
TOTAL	**70,507**	**87,010**

Notes:

1 Based on preliminary engineering.

2 These quantities, totaling 61,600 CY of cut and 83,100 CY of fill, are associated with substation site development. On-site areas included in the 11.64-acre substation parcel include duct banks for the distribution lines. Off-site areas are those located outside of the substation parcel.

3 N/A = not applicable; no grading anticipated

Source: SDG&E 2013a

Bulldozers would grade work pads to create a flat work space for power pole installation and to relocate the access roads around the power pole at 16 locations. Stringing sites would be mowed and some stringing sites may be graded to create a flatter area.

Soil may be imported to raise the elevation of work areas. Fill materials may be obtained from excavated materials within the transmission corridor, or fill materials may be obtained from borrow sites (refer to Section 2.7.9) if on-site materials do not meet engineering specifications.

Material removed during grading would be spread over existing access roads and work pads, used at the proposed substation site where possible, or disposed off-site in accordance with all applicable laws. A summary of the anticipated grading quantities for the proposed TL 6965 is provided in Table 2.7-1.

Miguel Substation Modifications

No vegetation removal would be required for construction of the Miguel Substation modifications. Foundations would be excavated for the new 69-kV steel structure and equipment. Cut and fill quantities for the Miguel Substation modifications are summarized in Table 2.7-1. Structural fill materials would be obtained from a borrow site.

Staging Yards

Vegetation removal and grading would be required at the Hunte Parkway staging yard. Vegetation would be cleared from an approximately 6.5-acre area within the northern portion of the parcel. Minor grading of approximately 30 CY of cut and fill is required to construct an entrance to the Hunte Parkway staging yard from Crossroads Street. The entrance/driveway would be constructed approximately 300 feet east of the Eastlake Parkway intersection with Crossroads Street.

Grading and vegetation removal is also expected within the Eastlake Parkway staging yard. The southwest portion of the staging yard was previously graded and no earthwork would be required in that area. The northwest portion of the Eastlake Parkway staging yard would require vegetation removal and may require grading to smooth out the area.

No grading or vegetation removal would be required at the Miguel Substation staging yard or OTC staging yards. These areas were previously disturbed and have no vegetation. A summary of the anticipated grading quantities for the proposed staging yards is provided in Table 2.7-1.

2.7.2 Construction Access

Construction work areas would be accessed through a combination of existing paved roads (City and County roads), existing unpaved roads, realigned unpaved roads, overland routes, and footpaths. Access roads are shown on Figures 2.6-1 through 2.6-8.

Proposed Substation

An existing sewer access road from Hunte Parkway to the proposed substation site would be widened from approximately 12 feet to 30 feet to ensure adequate substation access and to accommodate the proposed 12-kV underground distribution lines in the access road without disturbing the existing sewer line. The total length of the improved access road section would be approximately 850 feet.

SDG&E would improve the existing sewer access road from Hunte Parkway to provide primary access to the proposed substation site during construction. The current graded width of the existing sewer access road from Hunte Parkway to the substation site is approximately 16 feet. The paved portion of the roadway is approximately 12 feet wide. The remaining 4 feet is occupied by roadway shoulder and drainage elements. An existing 13-foot-wide driveway

apron provides an entry to the sewer access road from Hunte Parkway. Proposed access road improvements would consist of:

- Widening the total graded roadway width to approximately 41 feet
- Installing new asphaltic concrete pavement to an approximate width of 30 feet
- Installing retaining walls where necessary
- Installing guardrails above the proposed downhill slope retaining wall/structure
- Widening the existing driveway apron to 30 feet
- Removing and replacing approximately 120 feet of curb and gutter westerly from the driveway and along Hunte Parkway
- Installing and maintaining drainage conveyance for the access road improvements in accordance with the requirements of the City and SDRWQCB

Widening the existing sewer access road would require installation of retaining walls. Concrete, masonry, or MSE walls would be installed on the uphill and downhill sides of the access road. The retaining walls would be constructed in accordance with the project geotechnical reports and recommendations, standard construction practices, and pursuant to structural requirements from the City.

The existing concrete curb and gutter at the substation access point on Hunte Parkway would be removed and replaced with a reinforced concrete curb and gutter to withstand heavy vehicle loads.

SDG&E plans to improve an existing unpaved transmission access road for temporary access to the proposed substation site. The temporary access road would lead south from an existing driveway apron on Hunte Parkway to the approximate location of the TL 6910/TL 6964 cable pole. From that point, secondary access to the proposed substation site would be provided by the proposed TL 6910/TL 6964 underground alignment grading (Figure 2.6-12).

TL 6965

Pole work areas would be accessed by existing unpaved access roads, overland travel routes, footpaths, and new unpaved roads within or adjacent to SDG&E's existing ROW (e.g., south of cable pole 1 and existing utility access roads east of the transmission corridor; see Figures 2.6-1 through 2.6-8). SDG&E proposes to use existing unpaved access roads within and adjacent to the transmission corridor to the maximum extent feasible during construction of the new 69-kV power line. The existing access road would be adjusted at 19 locations to accommodate new pole construction and maintain necessary vehicular access. SDG&E proposes additional equipment passing areas where vehicles and equipment can pass outside of the existing access road. Passing areas would involve overland travel directly adjacent to an existing access road. New access roads are proposed to five structures (poles 5, 25, 33, 40 and 48). The new road to Pole 40 would require grading approximately 12 to 14 feet in width whereas the other four poles would involve clearing and grubbing. An existing footpath would be used to access some pole-top work areas within Miguel Substation.

All AC feature work areas would be accessed by existing SDG&E access roads and developed areas, with the exception of one ground mat area that would require temporary overland travel for approximately 10 feet to reach the work area.

Miguel Substation Modifications

The Miguel Substation work areas would be accessed via San Miguel Road and existing access roads within the substation site. No new access roads or improvements to existing access roads would be required for the construction of Miguel Substation modifications.

Staging Yards

Staging yards would be accessed from existing paved and unpaved roads adjacent to the staging yards. A driveway entrance would be constructed to the Hunte Parkway staging yard, as described previously. No new roads would be constructed to access the staging yards.

Helicopter Access

A light or medium-lift construction helicopter would be used during installation of the overhead conductor cable on TL 6965. Helicopter operation would occur during standard daytime construction hours for approximately five hours per day over a 4-day period. The Miguel Substation staging yard and the Hunte Parkway staging yard, and OTC staging yards (if necessary) would be used for helicopter take-offs and landings, storage, and refueling. Helicopter use would be compliant with all applicable usage permits, including those issued by the Federal Aviation Administration (FAA) and Caltrans (SDG&E 2013a).

2.7.3 Temporary Work Areas

Staging Yards

Up to nine temporary staging yards would be used for the proposed project. These staging yards are:

- Miguel Substation staging yard
- Eastlake Parkway staging yard (located within the transmission corridor between SR-125 and Eastlake Parkway)
- Hunte Parkway staging yard (located between Discovery Falls Drive, Eastlake Parkway, and Crossroads Street)
- OTC staging yards (five potential alternate staging yards)
- Salt Creek Substation pad staging yard (previously disturbed for construction of the proposed substation)

Staging yard acreages and activities are summarized in Table 2.7-2.

An approximately 6-foot-tall chain-link security fence (with screening slats or mesh at the Hunte Parkway and Eastlake Parkway locations) and a locking gate would enclose each staging yard, with the exception of the Salt Creek Substation pad location. The Salt Creek Substation pad staging yard would be enclosed within a temporary 8-foot-tall chain-link fence with locking gate. Construction workers would typically meet at the staging yard each morning and park their vehicles at the yard.

Table 2.7-2 Staging Yard Acreages and Activities

Staging Yard	Acres	Activities
Miguel Substation	1.9 (existing)	Material and equipment staging for northern portion of transmission corridor and Miguel Substation modifications; helicopter fly yard
Eastlake Parkway	1.7 (within SDG&E ROW)	Material, equipment, and vehicle staging for TL 6965 construction
Hunte Parkway	6.5 within 22-acre parcel	Material, equipment, and vehicle storage; helicopter fly yard; installation of temporary overhead power line from Crossroads Street to the staging yard and 30-foot-wide concrete driveway from Crossroads Street
OTC Staging Yards (five)	9.5 (combined)	Alternative staging yards for material and equipment staging and storage; potential helicopter fly yards
Salt Creek Substation	Within substation pad	Material, equipment, and vehicle storage for the proposed substation; no additional disturbance beyond that required for the substation.

Staging yard uses and activities would include:

- Pole assemblage
- Open storage of materials and equipment
- Construction trailers
- Portable restrooms
- Parking
- Refueling for vehicles and construction equipment by a mobile fueling truck
- Helicopter landing
- Temporary overhead power for construction

Helicopter Fly Yards and Refueling Areas

Helicopters may land at either the Hunte Parkway or Miguel Substation staging yards and, alternatively, the OTC staging yards, if necessary. Refueling operations would most likely be conducted at Brown Field airport, and could also be conducted at the Miguel Substation, Hunte Parkway, and OTC staging yards.

TL 6965

Pole Work Areas

SDG&E would use temporary pole work areas to construct engineered pole foundations, install/erect galvanized steel poles, and temporarily stage and store construction materials and equipment. Approximate temporary work area dimensions are summarized by pole type in Table 2.7-3. The work areas for the cable poles would be within the work area for TL 6965 undergrounding, and would not result in additional disturbance.

Line truck, bucket truck, and crane truck positioning would involve the placement of four outriggers per vehicle. Dimensions of each outrigger are approximately 2 feet wide by 3 feet long (6 square feet) for line trucks and bucket trucks, and 4 feet wide by 4 feet long (16 square

Table 2.7-3 Temporary Pole Work Areas

Pole Type	Number of Poles	Work Area Dimensions
Directly Embedded Galvanized Steel Pole	30	10 feet in diameter
Engineered Foundation Poles	10	75 feet by 75 feet
Cable Poles	3	150 feet by 150 feet
TOTAL	**43**	—

feet) for crane trucks. The contractors would determine the locations of the construction vehicles to allow the work to be conducted safely. The on-site biological monitor would assist crews in outrigger placement to avoid and minimize impacts to sensitive habitats, as appropriate.

Activities may be conducted outside of existing access roads and/or outside of delineated temporary work areas to maintain a safe working space for crewmembers working directly under the poles anticipated to be replaced. These activities could include:

- Construction vehicle staging
- Vehicle turnaround
- Vehicle passing
- Disturbance for temporary power connections during construction (overhead and/or underground close to the source)
- Temporary structures (if needed)
- Other similar temporary construction activities

SDG&E would conduct these temporary construction activities within the 120-foot-wide transmission corridor; however, specific temporary impact areas cannot be fully identified before construction because minor field adjustments may be required for crew safety. The on-site biological monitor would assist crews in locating additional temporary work areas to avoid and minimize impacts to sensitive biological resources. Any work outside of delineated temporary work areas and existing access roads would require additional CPUC review. The review process will be defined in the Mitigation Monitoring, Compliance, and Reporting Program (MMCRP). Any additional temporary work areas would be evaluated for compatibility with all requirements in this Draft EIR and SDG&E's Subregional NCCP.

Stringing Sites

Approximately 14 stringing sites would be required to tension the conductor to a pre-calculated level and to provide a safe working space while installing overhead conductors and underground cables. Stringing sites are shown on Figures 2.6-1 through 2.6-8. Some incidental grading may be required at stringing sites to create level areas for equipment; however, no grading is currently proposed at the stringing sites.

Miguel Substation

Work areas for the Miguel Substation modifications would be located within the Miguel Substation footprint. No temporary work areas would be required to construct the Miguel Substation modifications.

2.7.4 Substation Construction

Below-grade Construction

Below-grade construction would begin at the proposed substation site upon completion of grading (described previously). The following below-grade construction activities are proposed at the substation:

- Excavation of structure and equipment foundations
- Construction of underground ducts
- Construction of the ground grid
- Construction of the all-weather structure (control shelter)

Structure and equipment foundations would be excavated to an approximate depth of between 10 and 12 feet. Actual depths would depend on the equipment to be installed. Concrete pouring would be required to construct the foundations. Concrete use is summarized in Section 2.7.9. Underground ducts would be constructed within the substation pad for the distribution lines and 69-kV lines. Duct bank construction is described further in Section 2.7.5.

The all-weather structure would be a reinforced grouted masonry concrete structure constructed in accordance with the latest version of the California Building Code (CBC). The approximate dimensions of the control structure would be 20 feet by 40 feet, with a height of approximately 11 feet.

Above-ground Construction

Above-ground construction would include the installation and anchoring of major equipment and structures to their foundations. The following components would be installed during above-ground construction of the substation:

- 69-kV rack
- 69-kV circuit breakers
- Relay panels, controls, and batteries (located inside the control shelter)
- Ground grid, control, communication, and power ducts (wiring of the equipment controls and protection devices would follow installation)
- Two 69/12-kV transformers (including assembly and oil filling)
- 12-kV switchgear and capacitors

Power lines and distribution circuits would be connected inside the substation after substation structures and equipment are installed. Control and protection wiring would be completed during above ground structure installation. All equipment would be tested after installation and wiring, and before placing the substation in service. Equipment would be placed in service

once individual power lines and 12-kV circuits are ready to be energized and have been tested outside the substation.

AT&T would string a telephone line into the enclosed, all-weather structure via one underground 4-inch-diameter conduit that may be placed within the distribution duct package. The 900-foot line would connect from AT&T's existing facilities on Hunte Parkway. A separate trench may not be required if SDG&E is able to provide the conduit within the distribution duct package. Regardless, the underground trench would follow the general alignment of the sewer access road.

SDG&E would install a temporary tap to an existing distribution line within Hunte Parkway to provide electrical service to the proposed substation site during construction. The temporary tap would be approximately 1,800 feet long. This temporary tap would be used to power construction trailers, lighting, and small hand-held machinery or tools until the substation is energized. The temporary tap would include a temporary wood pole and above ground electrical wiring from Hunte Parkway to the proposed substation. A small generator would also supply power for substation construction.

2.7.5 Underground Duct Bank Installation

SDG&E would construct four 12-kV distribution duct banks between the proposed substation and Hunte Parkway. The 12-kV distribution duct banks would follow the general alignment of the City of Chula Vista's sewer access road. Underground duct banks would also be installed between the cable pole in the transmission corridor and the substation rack for TL 6965, TL 6910, and TL 6964.

Trenching

SDG&E would install the majority of the duct bank using open-cut trenching techniques. Typical trench dimensions for distribution duct banks are 3 to 6 feet deep and 2 to 7 feet wide. Typical trench dimensions for transmission duct banks are approximately 6 to 9 feet deep and 3 to 7 feet wide. The total cut is accounted for in the estimated cut-and-fill quantities for the proposed substation in Table 2.7-1. Trench dimensions would depend on the duct bank layout (vertical or horizontal, refer to Figure 2.6-14) and final design. Trench depths may vary depending on soil stability and the presence of existing substructures. The trench would be widened and shored where necessary to meet Occupational Safety and Health Administration (OSHA) requirements. If trench water is encountered, trenches would be dewatered using a portable pump, and water would be disposed of in accordance with existing regulations and requirements.

SDG&E would notify other utility companies to locate and mark existing underground utilities along the proposed underground alignment prior to trenching. SDG&E would also conduct exploratory excavations (potholing) to verify the locations of existing facilities in the ROW.

Duct Bank Installation

SDG&E would install the cable conduits (separated by spacers) within the trenches and pour concrete around the conduits to form the duct banks. Slurry backfill would be placed above the

duct banks and compacted. A road base backfill or slurry concrete cap would be installed in the distribution ducts, and the disturbed road/ground surface would be restored.

Manhole/Vault Installation

SDG&E would excavate and install approximately 12 concrete vaults/manholes within the duct banks (four for the distribution lines and eight for the 69-kV power lines). The vaults/manholes would be used to pull cable through the conduits and splice the cables together during construction. During operation, vaults/manholes would provide access to the underground cables for maintenance, inspections, and repairs. Vaults/manholes would be constructed of concrete and designed to withstand the maximum credible earthquake in the area and heavy truck traffic loading.

Cable Pulling/Splicing/Termination

SDG&E would install cable within the underground conduits. Cable would be pulled through the ducts via a cable reel placed at one end of the section and a pulling rig placed at the other end. A lubricant would be applied to the cable as it enters the duct to decrease friction during pulling. Mobile equipment, including trucks and generators, would be positioned adjacent to the vault/manhole openings for cable splicing. The fiber-optic telecommunications lines would be pulled in the TL 6910 loop-in duct banks to the proposed substation.

2.7.6 Power Pole Installation

Light-duty Directly Embedded Steel Poles

SDG&E would excavate 40- to 52-inch-diameter holes using a truck-mounted auger at each directly embedded steel pole location. Excavated holes would be approximately 6 to 17 feet deep depending on pole type and height. Approximately 2 to 10 CY of soil would be excavated at each hole. Plywood boards would cover the excavated holes until pole installation begins. New poles would be delivered to the site and lifted into place with a small crane. SDG&E would then backfill the annular space between the poles and holes with concrete. Any remaining excavated material would be placed around the holes, spread onto adjacent access roads and properly compacted, or disposed off-site at an approved facility (e.g., Otay Landfill). The permanent footprint for each of these new steel poles would be approximately five square feet (16- to 28-inch-diameter).

Steel Poles and Cable Pole Installation

Foundation Construction

SDG&E would install engineered steel poles and cable poles on concrete foundations. Foundation construction would begin by excavating a hole using an excavator with various-diameter augers to match the diameter and depth requirements of the foundation. Each foundation hole would be approximately 6 to 8 feet in diameter and 20 to 30 feet deep, resulting in the excavation of approximately 21 to 56 CY of soil, depending on site conditions and pole type (foundation pole or cable pole). ~~Steel plating would be placed over excavated holes prior to pole installation.~~ If a foundation excavation is left open prior to steel cage and concrete placement, the excavation will be covered and secured with steel plating. A reinforcing steel

cage and anchor bolts would be installed within the excavated hole. Concrete would be ~~poured~~ placed for the foundation, extending approximately ~~6~~ 18 to 24 inches above-grade. Each foundation would require approximately 22 to 60 CY of concrete. Concrete would be delivered directly to the pole location in concrete trucks with a capacity of up to 10 CY. Concrete may be pumped from several hundred feet away from the pole location if access is limited.

Engineered Pole and Cable Pole Installation
Steel poles would be delivered in two or more sections to the pole site via flatbed trucks. A large crane would be used to lift and set the poles into place on the anchor bolts embedded in the concrete foundation.

Grounding Rods
All steel poles would require a minimum of two grounding rods and a copper ground wire connecting the steel pole to the rods. Grounding rods are approximately 8 feet long and would be installed vertically approximately 6 feet apart and 18 inches below grade. Copper ground wire would be installed in a trench from the pole to the rods. The trench would be backfilled to the original grade after installation of the copper wire. Grounding rods and wire would be installed within the pole work pads. Permanent disturbance associated with grounding rod installation would be negligible (e.g., less than one square foot per structure).

2.7.7 Conductor Installation
Conductor installation procedures would be similar for all overhead portions of the proposed power line. ~~Temporary guard structures and mesh netting would be installed at crossings of SR-125~~ SDG&E, the construction contractor and Caltrans would collaborate to determine appropriate methods to ensure safety during conductor installation over SR-125. Typical methods include short periods of stopping traffic, guard structures and mesh netting.

Temporary Guard Structures
Approximately 38 guard structures would be used along the 5-mile-long alignment at locations where the power line crosses public roads or existing utility lines (Figures 2.6-1 through 2.6-8). Depending on site conditions, guard structures may consist of a single wood pole with a cross-beam attached to side extensions, a two-pole wood structure with a cross-beam, or a bucket or boom truck. Mesh netting may also be used at crossings of SR-125. Guard structures consisting of poles would require excavating holes approximately 2 feet in diameter and 6 feet deep using a truck-mounted auger. Poles approximately 35 to 40 feet above the ground surface would be installed using a line truck, and the soil would be backfilled around each pole. Upon completion of overhead power line construction, these guard structures would be removed and the holes would be backfilled.

Conductor Stringing
Aerial manlifts (e.g., bucket trucks) would be used to install sheaves or "rollers" on the pole structure prior to conductor installation. The sheaves would allow the conductor to be pulled past each structure prior to being pulled up to the final tension position. Following installation of the sheaves, a pull rope (a small cable used to pull the conductor) would be pulled onto the

sheaves using a helicopter. Once the pull rope is in place, it would be attached to a steel cable and the conductor would be attached to the cable and pulled back through the sheaves using conventional tractor-trailer pulling equipment located at the pull sites. This process would be repeated for each conductor and line segment (stringing site to pull site).

After the conductor is pulled into place, the sags between the structures would be adjusted to a pre-calculated level at each stringing site, described below. The line would be installed with minimum ground clearances, typically 30 feet of vertical clearance above drivable surfaces and 25 feet above non-drivable surfaces. The conductor would then be clipped into the end of each insulator, the sheaves would be removed, and vibration dampers and other accessories would be installed. This process would be repeated for each conductor and line segment.

2.7.8 Alternating Current Features Installation

Ground Mats

SDG&E would excavate a 4-foot by 8-foot area to a depth of approximately 6 inches at each ground mat area. The ground mat would be installed on native soil. A wire from the ground mat would connect to a direct current (DC) decoupler located above ground. The DC decoupler would be located in a pedestal approximately six inches wide, six inches long, and 42 inches high. Excavation at the ground mat location would expose the gas pipeline and two wires would be connected to the pipeline and connected to the DC decoupler, along with the wire from the ground mat. The pipe would be backfilled once the connections are made. Crushed rock would be placed on top of the ground mat at two of the seven ground mat locations. The remaining ground mat sites would be backfilled with native soil.

Gradient Control Wires

SDG&E would excavate a trench approximately one foot wide to a depth of approximately 3 feet at each gradient control wire location. Ribbon lengths would vary depending on the AC feature design requirement. A DC decoupler would be mounted in a pedestal at each location. Two wires would be connected to the pipeline and brought above ground to connect with the DC decoupler, along with a wire from a zinc ribbon anode at both ends of each section where the ribbon would be installed. SDG&E would then backfill the trench with native soil.

2.7.9 Concrete/Aggregate/Borrow Materials

Concrete and aggregate would be required for foundations, underground ducts, vaults, driveways, and walls. Concrete and aggregate requirements are summarized in Table 2.7-4. Borrow sites would be identified based on availability and in accordance with SDG&E procedures. The Class 2 aggregate source location would ultimately depend on material availability, quality and cost at the time of construction. SDG&E anticipates that the primary source of Class 2 aggregate base material would be Vulcan Materials Co., located at 2041 Heritage Road, Chula Vista, California 91910. The one-way distance from Vulcan Materials Co. to the proposed substation site is 6 miles. A secondary source for aggregate may be used depending on the quality of recycled materials available at the time of construction. SDG&E's proposed secondary aggregate source is Reclaimed Aggregates, 855 Energy Way, Chula Vista,

California 91911. The one-way distance from this source to the proposed substation site is approximately 8.5 miles.

Table 2.7-4 Estimated Concrete/Aggregate Use

Project Element	Concrete/Aggregate Volume (CY)
Directly Embedded Steel Poles	64 to 256
Equipment Foundations	650
69-kV Underground Duct Banks	2,000
12-kV Underground Duct Bank	2,200
Pre-cast Vaults	300
Driveway, Curb, and Gutter	10
Foundation Poles	299 to 780
Soil Nail Walls	150
Concrete Masonry Unit Walls	500
TOTAL	**6,173 to 6,846**

Source: SDG&E 2013a

2.7.10 Traffic Control

The proposed project would require approval of traffic control plans and encroachment permits from the City and Caltrans for work within the public ROW. SDG&E would comply with traffic control plans and the conditions of the encroachment permits to ensure the safe movement of vehicle traffic during construction near public streets and freeways.

SDG&E would put traffic controls in place on Hunte Parkway during construction of the underground duct banks within the Hunte Parkway ROW. Single-lane closures on Hunte Parkway are anticipated during construction of the proposed substation. SDG&E does not anticipate any full road closures would be needed during project construction.

2.7.11 Waste Disposal

All solid waste removed from the project area would be disposed of in a permitted landfill in accordance with federal, state, and local regulations. The Otay Landfill located on Maxwell Road in Chula Vista is the nearest landfill to the substation. The one-way distance to the substation site is approximately 8.7 miles.

2.7.12 Dewatering, Drainage, Erosion Control, and Water Use

Dewatering

Geotechnical surveys for the project indicate that groundwater is at a depth of approximately 225 to 230 feet below the ground surface (bgs) at the substation site (Kleinfelder 2008). Groundwater was encountered at approximately 11 feet bgs along the power line alignment

(Geosyntec 2012). Shallow or perched groundwater may be encountered during excavation of poles for the power line (steel pole excavations would be approximately 20 to 30 feet deep). In the event that groundwater is encountered in open excavations, (e.g., trenches or holes) SDG&E would dewater the hole. Dewatering would be conducted in accordance with water quality regulations and requirements (e.g., SDRWQCB dewatering permit).

Dewatering is not anticipated for construction of the substation or underground ducts because trench depths would be approximately 6 to 9 feet deep, which is shallower than measured groundwater levels.

Drainage

The proposed substation design includes the following drainage modifications/design elements:

- Water quality detention basin and storm drain outfall west of the substation
- Storm drain outfall south of the substation

SDG&E would construct a water quality detention basin directly west of the substation and outside of the substation perimeter wall (see Figure 2.6-12). The water quality detention basin would be vegetated (see the Conceptual Landscape Plan in Appendix B). The detention basin would have adequate capacity to meet City requirements. Water from the substation pad would drain toward the water quality detention basin. The detention basin would discharge via a proposed storm drain to an existing 96-inch-diameter storm drain dissipater in the ephemeral drainage west of the substation (Figure 2.6-12). The preliminary detention basin design includes a 15,500-square-foot basin with an estimated detention volume of approximately 49,700 cubic feet. The detention basin will meet City and County hydromodification requirements.

Stormwater from the hillslope south of the substation pad would collect on a 10-foot-wide bench and drain to a proposed storm drain outfall at the south border of SDG&E's property (Figure 2.6-12). The storm drain outfall would discharge to a drainage easement. Water would flow toward the ephemeral wash southwest of the substation.

Erosion Control

Soil and erosion control best management practices (BMPs) would be applied to areas of grading, earthwork, or other ground disturbance.

Projects that disturb one acre or more of soil are required to obtain coverage under the SWRCB General Permit for Storm Water Discharges Associated with Construction Activity, Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ (Construction General Permit). To obtain coverage under the Construction General Permit, permit registration documents, including a Notice of Intent, risk assessment, site map, certification, and annual fee must be submitted electronically to SWRCB prior to initiating construction activities. A Stormwater Pollution Prevention Plan (SWPPP) would be prepared for the proposed project that would include the following:

- Identification of pollutant sources and non-stormwater discharges associated with construction activities

- Specifications for BMPs that would be implemented, inspected, and maintained during construction of the proposed project to minimize erosion and the potential for accidental releases, and to minimize pollutants in runoff from construction areas, including pollutants from storage and maintenance areas and building materials laydown areas
- Specifications for spill response and implementation
- A record of training provided to persons responsible for implementing the SWPPP
- Requirements for reporting and recordkeeping
- A plan for water sampling and analysis to ensure that Numeric Action Levels and Numeric Effluent Limitations are not exceeded

Water Use

Water would be applied to the ground surface for dust control during project construction. Water use requirements for project construction are summarized in Table 2.7-5. Maximum daily water use quantities were used to estimate the total water use. The actual water demand for the project is expected to be less than the estimated water use because water use for dust control would be reduced after rain when the soil is moist.

2.7.13 Landscaping

SDG&E would plant trees, shrubs, and seeds on approximately 7.9 acres around the proposed substation perimeter walls. The Conceptual Landscape Plan is included in Appendix B. The landscape area is divided into three zones around the substation with different water and vegetation requirements in each zone. A permanent underground irrigation system is proposed for Zone 1 and Zone 2 plantings. Zone 3 plantings would be watered with a temporary aboveground irrigation system for approximately five years, until vegetation has established. Underground irrigation lines would be installed between Hunte Parkway and the proposed substation to supply water for permanent irrigation of Zones 1 and 2.

Table 2.7-5 Estimated Water Use during Construction

Project Component	Duration of Construction	Water Source	Water Usage (Maximum)	Maximum Total Water Usage
Proposed Substation	18 to 24 months	Otay Water District (reclaimed or potable)	30,000 gallons per day	18,720,000 gallons (57.4 acre-feet)
TL 6965, Miguel Substation Modifications, and Staging Yards	12 to 18 months	Chula Vista (potable) or Otay Water District (reclaimed)	30,000 gallons per day	14,040,000 gallons (43.1 acre-feet)
TOTAL				**32,760,000 gallons (100.5 acre-feet)**

Source: SDG&E 2014

2.7.14 Post-Construction Restoration

After construction is completed, SDG&E would restore all temporarily disturbed areas including stringing sites, temporary guard structure areas, and staging areas to approximate preconstruction conditions. Restoration activities could include minor regrading, reseeding, planting replacement vegetation, or structure replacement (e.g., fences and irrigation lines), and removal and disposal of construction materials and debris. Disturbed areas would be restored or mitigated consistent with SDG&E's Subregional NCCP. Restoration for erosion control may occur, as needed. All construction waste (i.e., refuse, spoils, trash, oil, fuels, poles, and pole structures) would be disposed of in accordance with all applicable federal, state, and local laws.

Some areas would not be revegetated due to fire safety vegetation management requirements (e.g., vegetation management would be required at approximately 12 poles). Topsoil would be salvaged for preservation of seed bank for sensitive species. The driveway off Crossroads Street to the Hunte Parkway staging yard would be removed, and the sidewalk and curb would be reinstalled to approximate its original condition. SDG&E would conduct a final survey to ensure that clean-up activities have been successfully completed as required.

2.7.15 Construction Personnel and Equipment

The construction workforce would include an average of approximately 36 workers on a daily basis and up to 91 workers during peak periods. The estimated equipment, duration of work, and personnel requirements by construction activity are presented in Table 2.7-6. The daily and peak workforce estimates reflect the concurrent construction of multiple project elements.

Table 2.7-6 Construction Workforce and Equipment

Activity	Equipment and Number		Duration of Activity (days)	Number of Personnel
Proposed Substation				
General Construction	3 Support Trucks	1 Mechanic Truck	125	5
	1 Air Compressor	1 Delivery Truck		
Substation General Construction	3 Support Trucks	1 Mechanic Truck	260	5
	1 Air Compressor	1 Delivery Truck		
	1 Generator			
Demolition	9 Pickup Trucks	2 Loaders	15	20
	1 Bulldozer	1 Breaker		
	1 Grader/Blade	2 Water Trucks		
	2 Excavators	2 Dump/Haul Trucks		
Site and Access Road Grading	12 Pickup Trucks	1 Skid Steer	90	33
	1 Bulldozer	2 Water Trucks		
	1 Grader/Blade	1 Street Sweeper		
	2 Scrapers	12 Dump/Haul Trucks		

Activity	Equipment and Number		Duration of Activity (days)	Number of Personnel
	1 Compactor			
Retaining Wall Construction	8 Pickup Trucks	1 Compactor	30	21
	1 Bulldozer	1 Loader		
	1 Grader/Blade	1 Backhoe		
	2 Scrapers	1 Water Truck		
	4 Dump/Haul Trucks	1 Excavator/Drill		
Storm Drain System Construction and Erosion Control	10 Pickup Trucks	1 Water Truck	40	16
	1 Compactor	2 Dump/Haul Trucks		
	1 Loader	1 Excavator		
Public Improvements and Access Road Paving	6 Pickup Trucks	1 Backhoe	20	12
	1 Skid Steer/Skip	1 Water Truck		
	1 Grader/Blade	2 Dump/Haul Trucks		
Substation Concrete Masonry Unit Wall Construction	6 Pickup Trucks	1 Trencher/Ditch Witch	20	13
	1 Forklift	1 Water Truck		
	1 Concrete Truck	1 Dump/Haul Truck		
	1 Compactor	1 Excavator/Drill		
Substation Below-grade Construction	6 Pickup Trucks	1 Loader	120	15
	Concrete Trucks[1]	1 Water Truck		
	1 Backhoe	1 Compactor		
	1 Forklift/Skid Steer	Dump/Haul Trucks[1]		
	1 Ditch Witch	1 Delivery Truck		
Substation Wiring	1 Wiring Truck	1 Delivery Truck	90	3
Telecom	1 Pickup Truck	1 Delivery Truck	60	3
Substation Above-ground Construction	3 Pickup Trucks	1 Cable Dolly (Trailer)	60	10
	1 Truck/Manlift	1 Oil-processing Truck		
	1 Large Crane	1 Flatbed Truck		
	1 Boom Truck	1 Boom Truck with Trailer		
	1 Forklift/Skid Steer			
Relay Testing	1 Relay/ Telecommunication Van		40	2
Salt Creek Energization (using TL 6965)	2 Pickup Trucks	1 Relay/ Telecommunication Van	5	4

Activity	Equipment and Number		Duration of Activity (days)	Number of Personnel
69-kV Substation Cutover	2 Pickup Trucks	1 Relay/ Telecommunication Van	15	4
TL 6965				
Site Grading/Re-establishing and Extending Existing Access Roads	1 Bulldozer	1 Grader/Blade	66	19
	2 Scrapers	2 Compactors		
	2 Loaders	2 Backhoes		
	3 Water Trucks	2 Dump/Haul Trucks		
	1 Excavator	3 Delivery Trucks		
Foundation Installation	3 Concrete Trucks	1 Drill Rig with Augers	30	8
	1 Backhoe	1 Generator		
	1 Dump/Haul Truck	1 Delivery Truck		
Underground Trench/Conduit/ Substructure Construction	3 Dump/Haul trucks	2 Backhoes	30	13
	5 Concrete Trucks	1 Excavator		
	2 Delivery Trucks			
Steel Structure Installation	1 2-ton Flatbed Truck	1 Large Crane	60	22
	4 Bucket Trucks/Manlifts	2 Diggers/Boom Trucks with Material Trailer		
	2 Material/Crew Trucks	2 Foreman Pickup Trucks		
	1 Delivery Truck	2 30-ton Cranes		
Overhead Conductor Pulling and Tensioning	4 Bucket Trucks/Manlifts	2 Diggers/Boom Trucks with Material Trailer	23	26
	1 Delivery Truck	2 Material/Crew Trucks		
	1 Helicopter	1 Bull-wheel Tensioner		
	2 Foreman Pickups	1 Puller		
	2 Reel Trailers	2 30-ton Cranes		
Underground Cable Pulling	2 Bucket Trucks/Manlifts	1 Digger/Boom Truck with Material Trailer	30	13
	1 Reel Trailer	1 Splice Trailer		
	1 Foreman Pickup	1 Puller		
	1 Material/Crew Truck	1 30-ton Crane		
TL 6910 Loop-in				
Foundation Installation	3 Concrete Trucks	1 Drill Rig with Augers	45	11
	1 Backhoe	1 Generator		

Activity	Equipment and Number		Duration of Activity (days)	Number of Personnel
	4 Dump/Haul Trucks	2 Delivery Trucks		
Underground Trench/Conduit/ Substructure Construction	1 Dump Haul Trucks	2 Backhoes	30	12
	4 Concrete Trucks	1 Excavator		
	4 Delivery Trucks			
Steel Structure Installation	1 Large Crane	2 Bucket Trucks/Manlifts	10	12
	1 Delivery Truck	1 Foreman Pickup		
	1 Material/Crew Truck	1 Digger/Boom Truck with Material Trailer		
	1 30-ton Crane			
Underground Cable Pulling	2 Bucket Trucks/Manlifts	1 Digger/Boom Truck with Material Trailer	30	14
	1 Reel Trailer	1 Delivery Truck		
	1 Splice Trailer	1 Foreman Pickup		
	1 Puller	1 Material/Crew Truck		
	1 30-ton Crane			
AC Features				
General Construction	Pickup Trucks	1 Construction Trailer	30	13
	3 Excavators			
Underground 12-kV Distribution Line				
Underground Trench/Conduit/ Substructure Construction	1 Boom Truck	1 Crane	166	35
	2 Bobcats	3 Backhoes		
	1 Cat-track Hoe	7 Dump/Haul Trucks		
	1 Construction Truck	6 Pickup Trucks		
	1 Pickup Truck with Saw-cut Trailer	1 Dump Truck with Compressor and Emulsion Sprayer		
	10 Concrete Trucks	2 Rollers		
	1 Spreader	1 Asphalt Grinder		
	Bucket Truck/Manlift	Delivery Trucks		
Cable/Conductor Pulling and Tensioning	1 Cable Dolly	3 Line Assist Trucks	45	7
	1 7,000-pound Puller Trailer	1 Heavy Duty Flatbed with Reel Carriers		
	3 Underground Combo Trucks			

Activity	Equipment and Number		Duration of Activity (days)	Number of Personnel
Miguel Substation Modifications				
Miguel Substation General Construction	3 ¾-ton or 1-ton Pickup Trucks	1 Air Compressor	80	5
	1 Mechanic truck	1 Delivery Truck		
Substation Below-grade Construction	6 Pickup Trucks	1 Concrete Truck	20	15
	1 Backhoe	1 Forklift/Skid Steer		
	1 Drill Rig with Auger	1 Loader		
	1 Water Truck	1 Handheld Compactor		
	1 Dump/Haul Truck	1 Delivery Truck		
Substation Above-ground Construction	3 ¾-ton or 1-ton Pickup Trucks	1 Bucket Truck/ Manlift	20	8
	1 Boom Truck	1 Forklift/Skid Steer		
	1 Cable Dolly	1 Flatbed Truck		
	1 Boom Truck with Trailer			
Substation Wiring	1 Wiring Truck	1 Delivery Truck	20	3
Relay Testing	1 Relay/ Telecommunication Van		20	2
Miguel Side Salt Creek Energization (using TL 6965)	2 Pickup Trucks	1 Relay/ Telecommunication Van	5	4
69-kV Substation Cutover	2 Pickup Trucks	1 Relay/ Telecommunication Van	15	4

Note:

[1] During substation below-grade construction, more than one Concrete and Dump/Haul truck may be onsite at a time. These trucks are not anticipated to remain onsite all day but would transport material to and from the site.

Source: SDG&E 2014

2.7.16 Construction Schedule

Project construction would occur for approximately 18 to 24 months. The estimated start date for construction is January 2016 with completion of construction by the end of 2017. The duration of construction by project component is summarized in Table 2.7-7. Multiple project components would be constructed concurrently to allow for construction of the entire project in 18 to 24 months.

Table 2.7-7 Construction Schedule

Project Component	Estimated Construction Duration (months)
Proposed Substation	18 to 24
TL 6965	12
TL 6910 Loop-in	6
AC Features	1
Underground 12-kV Distribution Line	8
Miguel Substation Modifications	5

Source: SDG&E 2014

Standard daytime construction hours for the proposed project would be Monday through Friday, 7 AM to 7 PM, and 8 AM to 7 PM on Saturday. Should it become necessary to meet project in-service needs, construction on Sundays may be performed consistent with the City of Chula Vista Municipal Code which allows construction on Sundays between the hours of 8AM and 10PM. Concrete pouring, transformer oil filling, conductor splicing, conductor stringing, and transmission cutovers may occur outside of these hours. Transformer oil filling may necessitate vacuum pulls and oil installation that require continuous work 24 hours per day (three to five days per transformer). Conductor splicing may require extended work hours due to the time required for continuous splicing. Conductor stringing may occur outside of normal work hours at crossings of SR-125, or as required by Caltrans. Cutovers of the transmission and distribution circuits to the proposed substation would depend on loading requirements and would be performed in a manner that maintains uninterrupted service to customers. Part or all of the cutover work may be conducted after normal business hours or on the weekend and/or nights to minimize impacts to schedules and to facilitate cutover work.

2.8 OPERATION AND MAINTENANCE

SDG&E would operate all new and existing components of the proposed project according to SDG&E's standard operating protocols and procedures. No changes to standard operating procedures are proposed as part of the project. SDG&E would also adhere to requirements in its Subregional NCCP. No changes to the NCCP are proposed as part of the proposed project.

2.8.1 Proposed Substation

Operation

The proposed substation would operate unattended. SDG&E would monitor and control the proposed substation from the SDG&E Remote Control Center. Routine operations would require daily to weekly visits by one or two workers. A 10- to 12-foot-tall perimeter wall would enclose the substation. Access gates would remain locked and signage would be posted to prevent trespassing.

Maintenance

Typical maintenance activities would involve routine inspections (aerial and ground), preventative maintenance to ensure service reliability, landscaping and irrigation repair and replacement, and emergency work to maintain or restore service.

Routine Inspections and Maintenance

SDG&E would perform aerial and ground inspections of the proposed substation. Maintenance on the substation would include repair of damaged transformers or other electrical equipment. SDG&E would conduct one major maintenance inspection annually. The major maintenance inspection would require about ten personnel and would take approximately one week to complete. Routine maintenance would occur approximately six times per year and would require crews of two to four people. Nighttime maintenance activities are not expected to occur more than once per year.

An inspection of the underground distribution circuit would occur annually. Maintenance on the underground distribution circuits would involve replacement of damaged cables and connectors. Distribution circuit maintenance crews would consist of four to six people.

Landscaping and Irrigation

Approximately 7.9 acres of the proposed substation area would be landscaped and irrigated. The water requirements for irrigation of the landscaped areas around the substation are summarized in Table 2.8-1. The SWPPP BMPs would remain in place and would be maintained until new vegetation is established. SDG&E would maintain the landscaping around the substation and replace vegetation as needed for the life of the substation. A landscape maintenance crew would conduct routine maintenance of the site (e.g., vegetation trimming, repair or irrigation lines, replacement plantings, and trash removal).

Table 2.8-1 Estimated Irrigation Water Requirements

Irrigation Period	Annual Water Requirement (gallons)	Years	Total Water Required (gallons)
During Plant Establishment	388,960	5 years	1,944,800
After Plant Establishment	272,272	N/A[1]	N/A[1]

Note:

[1] Permanent irrigation is proposed in landscape Zones 1 and 2. Irrigation would occur for the life of the substation.

Source: SDG&E 2013b

2.8.2 TL 6965

Maintenance of TL 6965 would involve inspections, routine preventative maintenance, and emergency procedures.

Inspections and Repairs

SDG&E would conduct routine inspections for corrosion, equipment misalignment, loose fittings, and other mechanical problems.

SDG&E would conduct ground patrols every three years. SDG&E would make repairs to conductors, insulators, switches, transformers, lightning arrest devices, line junctions, or other electrical equipment supported on various SDG&E poles or structures. Repair or replacement of such equipment would generally require a crew of four personnel and two or three trucks (a boom or line truck, an aerial lift truck, and an assist truck).

SDG&E would use a light- to medium-lift helicopter to visually inspect overhead facilities. Annual inspections typically include one annual visual aerial (February to May) inspection and one infrared aerial (July to October) inspection. These inspections would require a helicopter flying at approximately 400 feet to 500 feet above the ground for approximately 15 minutes along the 5-mile transmission corridor. SDG&E may also use helicopters for repair activities, including delivering equipment, positioning poles and structures, stringing lines, and positioning aerial marker balls along the conductor. Helicopter staging would be conducted at Miguel Substation in a 100-foot-by-100-foot area. A water truck would be used for dust control at the staging area. Crew size would range from seven to thirteen people: four to ten crew members, two helicopter staff, and one water truck driver.

Vegetation Management

SDG&E would maintain the area around the base of each power pole clear of shrubs and other obstructions for fire prevention purposes and to allow for aerial inspection. Vegetation clearing would occur annually. Crew members would use chain saws, weed trimmers, rakes, shovels, and/or brush-clearing hooks. Vegetation would be cleared to a radius of 10 feet from the base of poles fitted with specific non-exempt hardware (i.e., fuses, switches, lighting arrestors, hot tap clamps, and split bolts). Vegetation would be cleared to a radius of 5 feet from the base of power poles with external grounds. Vegetation management would be required at approximately 12 poles. Trees may need to be pruned as part of project maintenance if the trees grow into the power line clearance area.

Herbicide Application

Herbicides may be used to prevent vegetation cleared during vegetation management activities from re-establishing. Herbicide application is currently occurring on a regular basis where permitted within the existing transmission corridor. Herbicide application generally requires one person in a pickup truck. Herbicides are generally applied within the vegetation management area around the pole bases, as needed.

SDG&E selects herbicides for each site based on the habitat conditions. The herbicides that could be applied in the future may change based on new information and agency restrictions. SDG&E would only apply herbicides recommended by USFWS. SDG&E expects that the following herbicides could be used on the project:

- Garlon 4 Ultra
- Dupont Landmark XP
- Dow AgroSciences Milestone VM Herbicide
- Portfolio 4F CA
- Rodeo Herbicide
- Roundup Weed and Grass Killer
- SPRAKIL SK26 Granular Weed Killer

The surfactants In-Place and SYL-TACE may also be used.

2.8.3 Miguel Substation Modifications

SDG&E would continue to regularly inspect, maintain, and repair Miguel Substation, power lines, and distribution facilities. SDG&E would continue to monitor and control Miguel Substation from SDG&E's Remote Control Center. No new full-time staff would be required for operation and/or maintenance of the facilities. Operation and maintenance activities would not increase in intensity, frequency, or duration with implementation of the project.

2.9 ANTICIPATED PERMITS, APPROVALS, AND NOTIFICATIONS

The CPUC is the lead state agency for the project under CEQA because SDG&E must obtain approval of a PTC in accordance with CPUC's GO No. 131-D Section III.B (GO 131-D). GO 131-D includes the permitting requirements for the construction of transmission and power line facilities. In addition to the PTC, SDG&E would obtain all necessary permits for the project from federal, state, and local agencies per requirements under GO 131-D. Note that only ministerial permits are required from local jurisdictions. Table 2.9-1 provides the potential permits and approvals that may be required for project construction.

SDG&E would coordinate with the City to secure grading permits for the substation site grading, encroachment permits for trenching in City ROWs, and for construction activity within the City access road. Four duct packages would cross the City sewer line in the existing access road. Sewer crossings would be designed and constructed in accordance with City requirements.

Table 2.9~~10~~-1 Required Permits and Approvals

Permit/Authorization	Agency	Requirement
PTC	CPUC	Construction of the proposed project
SDG&E Subregional Natural Community Conservation Plan (NCCP)	USFWS; CDFW	SDG&E must comply with all conditions of the NCCP
Low-Effect Habitat Conservation Plan (HCP) for Quino Checkerspot Butterfly	USFWS	SDG&E must comply with all conditions of the HCP
Helicopter Lift Plan	Federal Avian Administration (FAA)	Flights over congested areas
Section 404 Permit[1]	USACE	Discharge of dredged or fill materials to waters of the U.S.
National Pollutant Discharge Elimination System (NPDES) Construction General Permit	State Water Resources Control Board (SWRCB)	Disturbance of more than 1 acre of land during construction
General NPDES Permit for Discharges from Utility Vaults & Underground Structures to Surface Waters (NPDES No. CAG990002); Order No. 2006-0008-DWQ	SWRCB	Discharge of water from utility vaults during operation
Section 401 Water Quality Certification/Waste Discharge Requirements[1]	SDRWQCB	Discharge of dredged or fill materials to waters of the U.S.
General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality	SDRWQCB	Temporary dewatering
Streambed Alteration Agreement[1]	CDFW	Discharge of material to a lake or streambed
Encroachment Permit	Caltrans	Stringing conductor across SR-125
Encroachment Permit/Traffic Control Permit	City of Chula Vista	Work within City right-of-way (ROW) and property
Structural Permit	City	Construction of walls for access road and proposed substation
Grading/Driveway Permit	City	Proposed substation grading and sidewalk alterations; TL 6965 undergrounding
Recycled Water Application	San Diego County Department of Environmental Health	Use of recycled water at proposed substation

Note:

[1] The preliminary project design avoids impacts to waters of the state and waters of the U.S. The need for these permits will be determined during final design.

2.10 ELECTRIC AND MAGNETIC FIELDS

This Draft EIR provides information regarding EMF associated with electric utility facilities because there is public interest and concern regarding potential health effects from exposure to EMF from power lines. The CPUC does not consider EMF to be an environmental issue in the context of CEQA. This is because: (1) there is no agreement among scientists that EMF creates a potential health risk, and (2) CEQA does not define or adopt standards for defining any potential risk from EMF. As a result, the following EMF information is presented for the benefit of the public and decision makers, but is not considered within the context of CEQA.

2.10.1 Defining Electric and Magnetic Fields

Electric fields and magnetic fields are distinct phenomena that occur both naturally and as a result of human activity. Naturally occurring electric and magnetic fields are caused, for example, by atmospheric conditions and the Earth's geomagnetic field. The fields caused by human activity result from technological application of the electromagnetic spectrum for uses such as communications, appliances, and the generation, transmission, and local distribution of electricity. Electric and magnetic fields are vector quantities that have the properties of direction and amplitude (field strength).

Electric and magnetic fields of power lines[1] also have the property of frequency, which is determined by the rate at which the fields change their direction each second (Hertz [Hz] is the unit of frequency). For power lines in the United States, the frequency of change is 60 times per second, leading to the designation "60 Hz power." In Europe and many other countries, the frequency of electric power is 50 Hz. Radio and other communications systems operate at much higher frequencies, from approximately 3,000 Hz (3 kilohertz) to approximately 300,000,000,000 Hz (300 gigahertz), at which frequencies the fields share a mutual relationship in forming EMF.

Electric power flows across utility electric systems from generating sources to serve electrical loads within the community. The power flowing over these lines is determined by the line's voltage and current. The higher the line's voltage level, the lower the amount of current needed to deliver the same amount of power. For example, a 115,000-volt (115-kV) "power" line with 200 amperes of current would transmit approximately 40,000 kilowatts (kW), whereas a 230-kV "transmission" line requires only 100 amperes of current to deliver the same 40,000 kW.

2.10.2 Electric Fields

Electric fields from power lines are created whenever the lines are energized. Field strength is directly dependent on the voltage of the line creating it. Electric field strength is typically

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[1] The term "power lines" in this section refers generally to electric lines of all voltage classes operating in SDG&E's electric system. However, CPUC GO 131-D distinguishes between distribution lines ("designed to operate under 50 kV"), power lines ("designed to operate between 50 and 200 kV"), and transmission lines ("designed to operate at or above 200 kilovolts").

described in units of kV per meter. Electric field strength attenuates (weakens) rapidly as the distance from the source increases. Electric fields from the lines are reduced in many locations because they are effectively shielded by most objects or materials such as trees or houses.

Unlike magnetic fields, which penetrate almost everything and are unaffected by buildings, trees, and other obstacles, electric fields are distorted by any object that is within the electric field, including the human body. Trying to measure an electric field with electronic instruments is difficult because the devices themselves alter the levels recorded. Determining an individual's exposure to electric fields requires the understanding of many variables, including the electric field itself, how effectively a person is grounded, and a person's body surface area within the electric field.

Electric fields in the vicinity of power lines can cause phenomena similar to the static electricity experienced on a dry winter day or clothing just removed from a clothes dryer, and may result in nuisance electric discharges when touching long metal fences, pipelines, or large vehicles. An acknowledged potential impact to public health from electric power lines is the hazard of electric shock: electric shocks from power lines are generally the result of accidental or unintentional contact by the public with the energized wires.

2.10.3 Magnetic Fields

Magnetic fields from power lines are created whenever current flows through power lines at any voltage. The strength of the field is directly dependent on the current in the line. Magnetic field strength is typically measured in milligauss. Similar to electric field strength, magnetic field strength attenuates rapidly with distance from the source. Unlike electric fields, magnetic fields are not shielded by most objects or materials.

2.10.4 Electric and Magnetic Fields Research

Media reports on potential EMF exposure from power lines have generated much public interest and concern. As a result of the public concerns, researchers have conducted numerous national and international sponsored studies to further understand and quantify the risks of EMF. In an effort to determine whether health standards are necessary, agencies such as the CPUC, California Department of Health Services (CDHS), the U.S. Environmental Protection Agency (EPA), ~~and~~ the National Institute of Environmental Health Sciences (NIEHS), and the World Health Organization have reviewed the research. The technical review of scientific data regarding EMF conducted by these state and federal agencies concluded that there is no basis for setting health standards for EMF (ATI Architects and Engineers 2004). CPUC Decision 93-11-013 issued on November 2, 1993, which addresses public concern about possible EMF health effects from electric utility facilities, concluded the following:

> "We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure…We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value."

2.10.5 Electric and Magnetic Field Sources in the Proposed Project Area

EMF exposure to the public in developed areas varies over a range of field intensities and durations due to sources in home and work environments, electric power distribution, and, infrequently, from proximity to power and transmission lines. SDG&E's TL 23041, TL 23042, and TL 6910 in the existing 120-foot-wide SDG&E utility corridor are just some of the sources of EMF in the project area. Residences are located within approximately 15 feet of TL 6910, and the nearest school (Eastlake High School) is located approximately 430 feet from TL 23041.

2.10.6 Electric and Magnetic Fields Associated with the Proposed Project

The specific EMF sources associated with the proposed project consist of a new 69-kV power line within the SDG&E utility corridor, the loop-in of TL 6910 underground into the new substation, the 12-kV distribution circuits associated with the proposed substation, and equipment within the substation. Normally, the highest values of magnetic fields around the perimeter of a substation are caused by overhead power lines and underground duct banks entering and leaving the substation, and not by substation equipment.

The CPUC issued decisions regarding EMF in 1993 (D.93-11-013) and 2006 (D.06-01-042). The 2006 decision re-affirmed a key finding of the 1993 decision, stating that "a direct link between exposure to EMF and human health effects has yet to be proven despite numerous studies including a study ordered by this Commission and conducted by DHS [Department of Health Services]". In the decisions, the CPUC directed utilities to consider "no cost" and "low cost" measures to reduce public exposure to EMF from new or upgraded electrical utility facilities up to approximately four percent of total project cost. In order to comply with direction from the CPUC, SDG&E developed its EMF Design Guidelines for Electrical Facilities and filed the guidelines with the CPUC in 2006. The following are examples of possible EMF reduction measures identified in SDG&E's EMF Design Guidelines for Electrical Facilities in accordance with CPUC Decisions 93-11-013 and 06-01-042:

- ~~Increase distance from conductors and equipment~~
- ~~Reduced conductor spacing~~
- ~~Minimize current in conductors~~
- ~~Optimize phase configuration~~
- ~~Maximize distance between aboveground conductors at substations and the public ROW~~
- ~~Maximize distance between underground cables and nearby sidewalks and buildings~~
- ~~Increase burial depth of the duct bank~~
- ~~Increase distance between overhead conductors and the ground~~
- Increase the distance from electrical facilities by:
  - Increasing structure height
  - Increasing burial depth of the duct bank
  - Locating power lines closer to the centerline of the corridor
- Reduce conductor spacing

- Phase circuits to reduce magnetic fields

The magnetic field reduction measure adopted for the proposed project is phasing the TL 6964 circuits to reduce magnetic fields (a "low cost" option). SDG&E's application for a PTC (SDG&E 2013a) includes a detailed Magnetic Field Management Plan describing the magnetic field reduction measures that were considered and adopted for the proposed project (Appendix C). Implementation of the Magnetic Field Management Plan will be tracked and verified by the CPUC during construction.

2.11 APPLICANT PROPOSED MEASURES AND HCP/NCCP OPERATIONAL PROTOCOLS

2.11.1 Applicant Proposed Measures

SDG&E included Project Design Features and Ordinary Construction/Operation Restrictions as well as APMs in its September 2013 PEA (SDG&E 2013a). Both types of environmental commitments are referred to here as APMs. SDG&E proposes to implement these measures during the design, construction, and operation of the proposed project to avoid or minimize potential environmental impacts. The APMs are presented in Table 2.11-1.

Table 2.11-1 Applicant Proposed Measures

APM Number	Requirements
Aesthetics	
APM AES-1: Visual Screening	The Hunte Parkway and Eastlake Parkway Staging Yards will have opaque mesh installed along the fence to screen the view of the staging yards from public vantage points, such as roads and residences.
APM AES-2: Night Lighting	All lights will be shielded and pointed down to minimize glare onto surrounding properties and natural habitats. Lights will not be left on at night, with the exception of the gate entry light and lights required for nighttime work and/or an emergency.
APM AES-3: Glare	Engineered poles (poles requiring foundations) will be dull galvanized to reduce glare compared to typical galvanized coatings. Direct bury poles will either be dull galvanized or weathered steel.
Air Quality	
APM AIR-1: Dust Control	All unpaved demolition and construction areas ~~will~~ shall be wetted as needed during construction, and temporary dust covers shall be used to reduce fugitive dust emissions and meet San Diego Air Pollution Control District (SDAPCD) Rule 55 requirements. SDG&E or its contractor shall keep the construction area sufficiently dampened to control dust caused to construction and hauling and at all times provide reasonable dust control of areas subject to windblown erosion. All ~~earthen material transported off site will~~loads shall be secured by covering or use of at least 2 feet of freeboard to avoid carry-over. All materials transported off-site shall be either sufficiently watered or securely covered. All earth-moving or excavation activities ~~that create visible dust will~~shall be discontinued ~~to limit~~during period of high winds (i.e., greater than 25 mph) to prevent excessive amount of fugitive dust ~~from leaving the project site~~generation.

APM Number	Requirements
APM AIR-2: Vehicle and Equipment Exhaust	SDG&E or its contractors will maintain and operate construction equipment to minimize exhaust emissions. All equipment will be properly tuned and maintained in accordance with manufacturer specifications. During construction, trucks and vehicles in loading and unloading queues will have their engines turned off after 5 minutes when not in use. All areas where construction vehicles are parked, staged, or operating will be visibly posted with signs stating, "No idling in excess of 5 minutes." Construction activities will be phased and scheduled to avoid emissions peaks, and equipment use will be curtailed during second-stage smog alerts.
APM AIR-3: VOC Emissions	Coatings, sealants, adhesives, solvents, asphalt, and architectural coatings will be in conformance with CARB's Suggested Control Measure for Architectural Coatings, and with SDAPCD's VOC Rules 61, 66.1, 67.0, and 67.17.
Biological Resources	
APM BIO-1: Burrowing Owl	SDG&E will coordinate with CDFW to implement the avoidance and minimization measures, as needed and as appropriate, to avoid impacts to western burrowing owl. If western burrowing owl occupancy on site is confirmed during pre-construction take avoidance surveys, SDG&E will implement the CDFW-approved "Burrowing Owl Monitoring and Mitigation Plan" in coordination with CDFW.
APM BIO-2: SDG&E Subregional Natural Communities Conservation Plan	The Proposed Project will avoid and minimize impacts to biological resources through implementation of the SDG&E Subregional NCCP, which is a comprehensive conservation-based approach that provides more effective species protection than project-by-project conservation planning would achieve. The SDG&E Subregional NCCP establishes a mechanism for addressing biological resource impacts incidental to the development, maintenance, and repair of SDG&E facilities within the SDG&E Subregional NCCP coverage area. The Proposed Project is located within the SDG&E Subregional NCCP coverage area. The SDG&E Subregional NCCP includes a Federal ESA Section 10(A) permit and a California ESA Section 2081 Memorandum of Understanding (for incidental take) with an Implementation Agreement with USFWS and CDFW, respectively, for the management and conservation of multiple species and their associated habitats, as established according to the federal and state ESAs and California's NCCP Act. The NCCP's Implementing Agreement confirms that the mitigation, compensation, and enhancement obligations contained in the Agreement and SDG&E Subregional NCCP meet all relevant standards and requirements of the California ESA, the federal ESA, the NCCP Act, and the Native Plant Protection Act with regard to SDG&E's activities in the Subregional NCCP Plan Area. Pursuant to the SDG&E Subregional NCCP, SDG&E conducted pre-construction studies for all activities occurring off of existing access roads in natural areas. An independent biological consulting firm surveyed all Proposed Project impact areas and prepared a Pre-Activity Study Report (PSR) outlining all anticipated impacts related to the Proposed Project. The Proposed Project will include monitoring, as recommended by the PSR and outlined in the SDG&E Subregional NCCP, as well as other avoidance and minimization measures outlined in the NCCP's Operational Protocols. Prior to the commencement of construction, a verification survey of the Proposed Project disturbance areas will be conducted, as required by the SDG&E Subregional NCCP. Biological monitors will be present as needed during construction to ensure implementation of the avoidance and minimization measures set forth in the NCCP. If the previously delineated work areas must be expanded or modified during construction, the monitors will survey the additional impact area to determine if any sensitive resources will be impacted by the proposed activities, to identify avoidance and minimization measures, and to document any

APM Number	Requirements
	additional impacts. Any additional impacts would be included in a Post-Construction Report (PCR) to calculate the appropriate mitigation, which generally includes site enhancement or credit withdrawal from SDG&E mitigation bank credits. Alternatively, SDG&E may utilize the 11.0959 acres of purchased conveyance land credits in the Otay Ranch Preserve in lieu of drawing down additional credits from SDG&E's NCCP credits. When construction is complete, the biological monitor will conduct a survey of the entire Proposed Project area to determine actual impacts from construction. The PCR will determine how much site enhancement and credit withdrawal from the SDG&E mitigation bank would be required to address impacts from activities related to the Proposed Project. These impact and mitigation credit calculations will be submitted to USFWS and CDFW as part of the NCCP Annual Report, pursuant to requirements of the NCCP and the NCCP Implementing Agreement. Specific operating restrictions that are incorporated into the Proposed Project to comply with the SDG&E Subregional NCCP include the following: • Vehicles will be kept on access roads and limited to 15 miles per hour (Section 7.1.1, 1.). • No wildlife, including rattlesnakes, may be harmed, except to protect life and limb (7.1.1, 2.). • Feeding of wildlife is not allowed (Section 7.1.1, 4.). • No pets are allowed within the ROW (Section 7.1.1, 5.).). • Plant or wildlife species may not be collected for pets or any other reason. (Section 7.1.1, 7). • Littering is not allowed, and no food or waste will be left on the ROW or adjacent properties (Section 7.1.1, 8.). • Measures to prevent or minimize wild fires will be implemented, including exercising care when driving and not parking vehicles where catalytic converters can ignite dry vegetation (Section 7.1.1, 9.). • Field crews shall refer all environmental issues, including wildlife relocation, dead, or sick wildlife, or questions regarding environmental impacts to the Environmental Surveyor. Biologists or experts in wildlife handling may be necessary to assist with wildlife relocations (Section 7.1.1, 10.). • All SDG&E personnel will participate in an environmental training program conducted by SDG&E, with annual updates (Section 7.1.2, 11.). • The Environmental Surveyor shall conduct preactivity studies for all activities occurring in natural areas, and will complete a preactivity study form including recommendations for review by a biologist and construction monitoring, if appropriate. The form will be provided to CDFW and USFWS but does not require their approval (Section 7.1.3, 13.). • The Environmental Surveyor shall flag boundaries of habitats to be avoided and, if necessary, the construction work boundaries (Section 7.1.3, 14.). • The Environmental Surveyor must approve of activity prior to working in sensitive areas where disturbance to habitat may be unavoidable (Section 7.1.4, 25.).). • In the event SDG&E identifies a covered species (listed as threatened or endangered by the federal or state) of plant within the temporary work area (10 foot radius) surrounding a power pole, SDG&E would notify the USFWS (for Federal ESA listed plants) and CDFW (for California ESA listed plants) (Section 7.1.4, 28.). • The Environmental Surveyor shall conduct monitoring as recommended in the preactivity study form (Section 7.1.4, 35.). • Supplies, equipment, or construction excavations where wildlife could hide (e.g., pipes, culverts, pole holes, trenches) shall be inspected prior to moving

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	or working on/in them (Section 7.1.4, 37, and 38.). • Fugitive dust will be controlled by regular watering and speed limits (Section 7.1.4, 39.). • During the nesting season, the presence or absence of nesting species (including raptors) shall be determined by a biologist who would recommend appropriate avoidance and minimization measures (Section 7.1.6, 50). • Maintenance or construction vehicle access through willow creeks or streams is allowed. However no filling for access purposes in waterways is allowed (Section 7.1.7, 52). • Staging/storage areas for equipment and materials shall be located outside of riparian areas (Section 7.1.7, 53.).
APM BIO-3: Cover Excavations	SDG&E will inspect and cover all excavated pole holes at the end of each day and when not in use, using suitable materials to prevent human and animal entrapment (e.g., plywood boards, plastic covering, gravel, and/or sand bags).
APM BIO-4: Restoring Temporarily Disturbed Areas	SDG&E will restore all areas that are temporarily disturbed by project activities (e.g., stringing sites, structure removal sites, and staging areas) to approximate preconstruction conditions following completion of construction, as needed and appropriate. Disturbed areas will be revegetated where appropriate (to re-establish a natural-appearing landscape and reduce potential visual contrast with the surrounding landscape). Revegetation in certain areas will not be possible due to vegetation management requirements related to fire safety. Restoration could include reseeding, planting replacement vegetation, or replacement of structures (such as fences), as appropriate. In addition, all construction materials and debris will be removed from the project area and recycled or properly disposed of off-site. SDG&E will conduct a final survey after restoration to ensure that clean-up activities are successfully completed as required.
Cultural and Paleontological Resources	
APM CUL-1: Cultural Resource Training	A qualified archaeologist shall attend pre-construction meetings, as needed, to consult with the excavation contractor concerning excavation schedules, archaeological field techniques, and safety issues. A qualified archaeologist is defined as an archaeologist that meets the U.S. Secretary of Interior Professional Qualifications Standards, as published in 36 Code of Federal Regulations Part 61. Proposed Project personnel shall receive training regarding the appropriate work practices necessary to effectively implement the APMs, including the potential for exposing subsurface cultural resources and paleontological resources. This training program shall be submitted to CPUC for approval and include procedures to be followed upon the discovery or suspected discovery of archaeological materials, Native American remains, and paleontological resources. Such appropriate work practices and inadvertent discovery procedures are outlined in the Cultural Resources Mitigation and Monitoring Plan (CRMMP). The requirements for archaeological monitoring shall be noted on the construction plans.
APM CUL-2: Cultural Resource Monitoring	An archaeological monitor shall work under the direction of the qualified archaeologist. Monitoring will be conducted according to the procedures outlined in the CRMMP and will occur during proposed pole replacement/improvement activities and access road grading adjacent to eligible cultural resources. Monitoring shall also occur during vegetation removal or ground-disturbing activities. If the previously delineated work areas must be expanded or modified during construction, CPUC procedures will be followed and the cultural monitors will review the previous survey data for the proposed project to determine if any sensitive resources would be impacted by the

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	proposed activities, to identify any necessary avoidance and minimization measures, and to document any additional impacts, and avoidance and minimization measures. The CRMMP will address any project refinements that go outside of previously evaluated work areas and will detail the appropriate measures to be implemented. The CRMMP will specify the criteria by which the resource will be evaluated for significance. The CRMMP will also outline the consultation requirements. In the event that cultural resources are encountered during ground-disturbing activities, the archaeologist shall have the authority to divert or temporarily suspend ground disturbance to allow evaluation of potentially significant cultural resources. The archaeologist shall follow the appropriate reporting and treatment procedures outlined in the CRMMP before activities are allowed to resume.
APM CUL-3: Access Routes	Where ground-disturbing activities, such as grading, are conducted along access roads, monitoring shall occur where the access road crosses the site or is located with the boundaries of a site, and equipment blades shall be lifted when traversing sites. Monitoring shall occur for ground-disturbing activities associated with access road improvements within the Existing Substation property. Additionally, all vehicles shall remain on existing dirt roads and new access identified for the Proposed Project. In the event that a resource is observed while monitoring an access road, appropriate inadvertent discovery procedures outlined in the CRMMP shall be followed before activities are allowed to resume.
APM CUL-4: Qualified Paleontologist	A qualified paleontologist shall attend preconstruction meetings, as needed, to consult with the excavation contractor concerning excavation schedules, paleontological field techniques, and safety issues. A qualified paleontologist is defined as an individual with a Master's of Science or Doctor of Philosophy in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology and paleontology of Southern California, and who has worked as a paleontological mitigation project supervisor in the region for at least 1 year. The requirements for paleontological monitoring shall be noted on the construction plans.
APM CUL-5: Paleontological Monitoring	A paleontological monitor shall work under the direction of the qualified Proposed Project paleontologist, and shall be on site to observe excavation operations that involve the original cutting of previously undisturbed deposits with high paleontological resource sensitivity (i.e., Mission Valley and Otay Formations). A paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials. If the previously delineated work areas must be expanded or modified during construction, the paleontological monitors would review the previous survey data for the proposed project to determine if the additional impact area to determine if any sensitive resources would be impacted by the proposed activities, to identify any necessary avoidance and minimization measures, and to document any additional impacts, and avoidance and minimization measures. In the event that fossils are encountered, the paleontological monitor shall have the authority to divert or temporarily halt construction activities in the area of the discovery to allow recovery of fossil remains in a timely manner.
APM CUL-6: Paleontological Screen-Washing	Because of the potential for recovery of small fossil remains, it may be necessary to set up a screen-washing operation on-site. If fossils are discovered, the paleontologist (or paleontological monitor) shall recover them, along with pertinent stratigraphic data. Because of the potential for recovery of small fossil remains, such as isolated mammal teeth, recovery of bulk sedimentary matrix samples for off-site wet screening from specific strata may be necessary, as determined in the field. Fossil remains collected during monitoring and salvage shall be cleaned, repaired, sorted, cataloged, and deposited in a scientific

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	institution with permanent paleontological collections. A final summary report shall be completed. This report shall include discussions of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils. The report shall also include an itemized inventory of all collected and catalogued fossil specimens.
APM CUL-7: Discovery of Human Remains	If human remains are encountered during construction, SDG&E staff will comply with California law (Health and Safety Code section 7050.5; PRC sections 5097.94, 5097.98, and 5097.99). This law specifies that work stop immediately in any areas where human remains or suspected human remains are encountered. The appropriate agency and SDG&E will be notified of any such discovery. SDG&E will contact the Medical Examiner at the county coroner's office. The Medical Examiner has two (2) working days to examine the remains after being notified by SDG&E. ~~Under some circumstances, a determination may be made without direct input from the Medical Examiner.~~ When the remains are determined to be Native American, the Medical Examiner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC will immediately notify the identified Most Likely Descendant (MLD), and the MLD has 24 hours to make recommendations to the landowner or representative for the respectful treatment or disposition of the remains and grave goods. If the MLD does not make recommendations within 24 hours, the area of the property must be secured from further disturbance. If there are disputes between the landowner and the MLD, the NAHC will mediate the dispute to attempt to find a resolution. If mediation fails to provide measures acceptable to the landowner, the landowner or his/her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.
Geology and Soils	
APM GEO-1: Geotechnical Requirements	SDG&E will incorporate the design measures and findings of the geotechnical investigation reports in the final design of all project components.
APM GEO-2: Seismic Standards	SDG&E will comply with all applicable codes and seismic standards to minimize the potential for damage from a seismic event. The project will be designed to withstand strong seismic accelerations in accordance with SDG&E standard design and engineering practices to reduce the potential for damage to occur to the proposed facilities in the event of a major seismic event.
Greenhouse Gas Emissions	
APM GHG-1: SF_6 Management	The proposed Salt Creek Substation would be an air-insulated substation. Equipment containing sulfur hexafluoride (SF_6) gas will only be used for transmission circuit breakers. SDG&E SF_6 mitigation strategies will be implemented during operation and maintenance of SF_6-containing equipment installed as part of the proposed project. These strategies are as follows: • Recording company-wide SF_6 purchases, use, and emissions rates to comply with the EPA rule on Electrical Transmission and Distribution Equipment Use (Mandatory Reporting of Greenhouse Gases, 40 Code of Federal Regulations [CFR] Part 98, Subpart DD) and CARB's Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear (California Code of Regulations [CCR] Title 17, Sections 95350–95359). • Continuing to participate in the EPA Sulfur Hexafluoride Partnership. • Implementing a recycling program. • Training employees on safe and proper handling of SF_6.

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	• Continuing to report greenhouse gas emissions to The Climate Registry. • Implementing SDG&E's SF_6 leak detection and repair program. This program includes monthly visual inspections of each gas circuit breaker (GCB), which includes checking pressure levels within the breaker and recording these readings in SDG&E's Substation Management System. During installation or major overhaul of any GCB, the unit is tested over a 24-hour period to ensure that no leaks are present. Minor overhauls of each GCB are conducted every 36 to 40 months to check overall equipment health. This process includes checking gas pressure, moisture ingress, and SF_6 decomposition. If the GCB fails any of these checks, the unit is checked for leaks and repaired. In addition, all GCBs are equipped with a gas monitoring device and alarm that automatically alerts SDG&E's Grid Operations Center. If gas pressure approaches minimum operating levels, an alarm is immediately reported to SDG&E's Substation Construction and Maintenance Department. The GCB is usually inspected for leaks within 24 hours of such an alarm. SDG&E's leak detection practice includes the following three methodologies: – Spraying a leak-detection agent onto common leak points, including O rings, gaskets, and fittings; – Using a field-monitoring device (sniffer) to detect the presence of SF_6 gas; and – Using a Flir's leak-detection camera to detect the presence of SF_6 gas when the above two methods are unsuccessful in finding a leak.
Hazards and Hazardous Materials	
APM HAZ-1: Spill Prevention, Control, and Countermeasure Plan and Hazardous Substance Management and Emergency Response Plan	A Spill Prevention, Control, and Countermeasure (SPCC) Plan will be prepared prior to project construction. ~~and that addresses response procedures in the event of any release or spill of hazardous materials during construction.~~ An SPCC Plan Is required for the transformers at the proposed Salt Creek Substation because the transformers would contain more than 1,320 gallons of mineral oil. The SPCC plan will establish procedures, methods, equipment requirements, and worker training to prevent oil spills or leaks from reaching ~~waterways and leaving the site~~ navigable waterways. A Hazardous Substance Management and Emergency Response (HSMER) Plan will be prepared prior to project construction that addresses response procedures in the event of any release or spill of hazardous materials during construction. The HSMER Plan will establish procedures, methods, equipment requirements, and worker training to prevent spills or leaks from reaching waterways and leaving the site.
APM HAZ-2: Hazardous Materials Management	SDG&E will prepare and implement a Hazardous Materials Business Plan as required by Chapter 6.95 of the State of California Health and Safety Code if the project exceeds the threshold quantities of hazardous materials and/or waste.
APM HAZ-3: Wildland Fire Prevention and Fire Safety Practices	Construction within "High" and "Very High" Fire Threat Zones (identified by the Fire and Resource Assessment Program (FRAP) maintained by CalFire) will be consistent with SDG&E's current design standards to improve service reliability in fire-prone areas during extreme weather conditions. SDG&E's current design standards include increasing conductor spacing to improve line clearances; installing steel poles to withstand extreme winds; installing self-supporting angle structures, which eliminate guying; and installing longer polymer insulators to minimize the potential of electrical faults caused by contamination, which will improve system reliability. SDG&E will adhere to its current operating protocol, Electric Standard Practice (ESP) 113.1, Wildland Fire Prevention and Fire Safety Standard Practice, which includes requirements for carrying emergency fire suppression equipment;

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	conducting "tailgate meetings" that cover fire safety discussions, restrictions on smoking, and idling vehicles; and restricting construction during red flag warnings. The project will also comply with SDG&E's project-specific Construction Fire Plan. The Construction Fire Plan addresses the following fire risk reduction measures: • Training and briefing all personnel working on the project in fire prevention and suppression methods; • Conducting a fire prevention discussion at each morning's safety meeting; • Storage of prescribed fire tools and backpack pumps with water within 50 feet of work activities; and • Assigning personnel to conduct a "fire watch" or "fire patrol" to ensure that risk mitigation and fire preparedness measures are implemented, immediate detection of a fire, and to coordinate with emergency response personnel in the event of a fire. Weather and fire danger will be monitored daily by company ~~meteorologists and~~ wildland fire specialists to provide timely and immediate communication of significant changes that could impact the project. No ~~work will occur during times of high fire threat, and if conditions change after commencing construction, work will cease in periods of extreme fire danger, such as red flag warnings issued by the National Weather Service or other severe fire weather conditions as identified by SDG&E.~~ "at risk" activities will be conducted except for those activities which, if left undone, present a greater risk than that involved with their accomplishment when the Fire Potential Index is Extreme (includes Red Flag Warnings). Some activities may be allowed inside substation fences and inside staging yards after consultation with the On-duty Fire Coordinator/Fire specialist to make a determination and identify additional mitigation requirements to reduce risk.
Hydrology and Water Quality	
APM HYDRO-1: Stormwater Pollution Prevention Plan	SDG&E will obtain coverage for the project under the Construction General Permit (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ), which requires submittal of Permit Registration Documents (PRDs) to the State Water Resources Control Board. The PRDs include a Stormwater Pollution Prevention Plan (SWPPP), which will include the following: • Identification of pollutant sources and non-stormwater discharges associated with construction activity. • Specifications for erosion control best management practices (BMPs) that would be implemented, inspected, and maintained during construction of the project to minimize erosion and the potential for accidental releases, and to minimize pollutants in the runoff from the construction areas, including pollutants from storage and maintenance areas and building materials laydown areas. • Procedures for spill response and implementation. • Personnel training procedures for protocols included in the SWPPP. • Requirements for reporting and recordkeeping. • Procedures for water sampling and analysis of pollutants to ensure that Numeric Action Levels and Numeric Effluent Limitations are not exceeded.
APM HYDRO-2: Stormwater Management Plan	SDG&E will prepare and implement a Stormwater Management Plan to addresses post-construction drainage and water quality impacts (in tandem with the site design) in accordance with the City of Chula Vista's Standard Urban Stormwater Mitigation Plan (SUSMP) to comply with the Regional Municipal Separate Stormwater Sewer System (MS4) Permit (i.e., Clean Water Act Section 403, NPDES Permit). Any long-term maintenance activities required in the Water Quality Technical Report prepared for the proposed project would be in

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	accordance with the City's SUSMP.
Noise	
APM NOISE-1: Mufflers	Functioning mufflers will be maintained on all equipment.
APM NOISE-2: Helicopter Use	Helicopter usage will occur during daylight hours and conform to acceptable hours for construction activities, as outlined within the San Diego County Noise Code and the City of Chula Vista Noise Ordinance. All helicopter use will comply with local, state, and federal regulations. There will be no helicopter over-flights of residences.
APM NOISE-3: Construction Outside of Allowed Hours	If construction activities are required outside of the permissible local construction hours, SDG&E will ~~obtain approval from~~ meet and confer with the City of Chula Vista and the County of San Diego prior to conducting construction outside the permitted hours.
Recreation	
APM REC-1: Temporary Trail Detours	Where feasible, temporary detours will be provided for trail users. Signs will be posted to direct trail users to temporary trail detours. If a trail detour is not feasible, the trail will be closed and signs will alert trail users 1 week in advance of the closure. Signs will be posted within 200 feet of the trail closure area.
Transportation and Traffic	
APM TRANS-1: Steel Plating	Steel plating will be placed over open trenches to maintain vehicular and pedestrian traffic across areas that are not under active construction.
Utilities and Service Systems	
APM UTIL-1: Utility Notification	Prior to trenching, SDG&E will notify other utility companies to locate and mark existing underground utilities along the proposed underground alignment.

2.11.2 HCP/NCCP Operational Protocols

APM BIO-2 provides a summary of some of the SDG&E Subregional HCP/NCCP operational protocols. SDG&E must comply with all applicable HCP/NCCP operational protocols. SDG&E's HCP/NCCP operational protocols are provided in Appendix D. These protocols would be implemented during project planning, construction, operation, and maintenance.

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