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CHAPTER 3 – PROJECT DESCRIPTION

San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas)—hereinafter referred to as "the Applicants"—propose to construct, operate, and maintain the Pipeline Safety & Reliability Project (Proposed Project). The Proposed Project is an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from SDG&E's existing Rainbow Metering Station to the pipeline's terminus on Marine Corps Air Station (MCAS) Miramar. In addition to the pipeline, the Applicants will construct and maintain appurtenant facilities, including mainline valves (MLVs), metering equipment, pressure-limiting equipment, in-line inspection equipment, cathodic protection systems, and an intrusion detection and leak monitoring system. The information provided in this chapter is preliminary and subject to change based on California Public Utilities Commission (CPUC) requirements, final engineering, and other factors.

3.0 PROJECT LOCATION

The Proposed Project is located in San Diego County, California, and crosses the cities of San Diego, Escondido, and Poway; unincorporated communities in San Diego County; and federal land. Approximately 87 percent (approximately 41 miles) of the Proposed Project will be installed in urban areas within existing roadways and road shoulders. The remaining approximately 13 percent (approximately six miles) of the Proposed Project will be installed cross-country. Approximately 8.1 miles (49.1 acres) of the Proposed Project will require new right-of-way (ROW), approximately 1.7 acres of new acquisition will be needed for appurtenant facilities, and approximately 0.3 acre will be located on SDG&E-owned property. The remainder of the Proposed Project will be installed pursuant to franchise agreements along roadways. The Proposed Project will cross several water features, including the San Luis Rey River, Lake Hodges, and Escondido Creek. An overview of the Proposed Project location is provided in Figure 3-1: Project Overview Map.

The Proposed Project route begins at the proposed Rainbow Pressure-Limiting Station, which is located approximately 50 feet south of the existing Rainbow Metering Station. From the Rainbow Pressure-Limiting Station, the Proposed Project route traverses southeast along Old Highway 395 for approximately 2.3 miles, then turns west and crosses under Interstate (I-) 15 overpass. The Proposed Project route then turns south along Rainbow Hills Road for approximately 0.9 mile before veering southwest for approximately 0.5 mile through an avocado orchard. The Proposed Project travels 0.04 mile along Avo Drive, then turns southeast along East Mission Road for 0.25 mile, at which point East Mission Road becomes Old Highway 395. The Proposed Project travels generally south along Old Highway 395 for approximately 4.3 miles until reaching State Route (SR-) 76. The Proposed Project route continues southeast cross-country for approximately 0.15 mile, where the pipeline crosses under the San Luis Rey River in an approximately 0.64-mile-long horizontal directional drill (HDD). From the HDD exit point, the route turns slightly southwest across approximately 0.16 mile of undeveloped land, then rejoins Old Highway 395 and continues south for approximately 1.85 miles until it reaches I-15. At this point, the Proposed Project route will cross under I-15 in an approximately 0.63-mile-long HDD. From the I-15 HDD exit point, the Proposed Project route continues southeast for approximately 0.15 mile through undeveloped land until it again meets Old Highway 395. The

Proposed Project route follows Old Highway 395 for approximately 2.1 miles to Gopher Canyon Road, at which point Old Highway 395 becomes Champagne Boulevard.

The Proposed Project route continues south along Champagne Boulevard for approximately 4.25 miles, where the road becomes North Centre City Parkway at Deer Springs Road. The Proposed Project route continues in a south/southwesterly direction along North Centre City Parkway for approximately 5.16 miles, then the pipeline will tie into the existing Line 1601 before crossing under SR-78. The Proposed Project route continues south for approximately 2.1 miles then turns northeast at Felicita Avenue. The Proposed Project route continues along Felicita Avenue for 0.47 mile then veers east for 0.4 mile along East 17th Avenue until it reaches Encino Drive. The Proposed Project route travels southeast along Encino Drive for 0.76 mile, then veers generally south along Bear Valley Parkway South for approximately two miles, until it reaches Beethoven Drive. The Proposed Project route then continues south and parallels an unpaved road for approximately 0.5 mile until it reaches Lake Hodges. At this point, the Proposed Project route crosses under Lake Hodges in an approximately 0.4-mile-long HDD. At the HDD exit point, the Proposed Project route heads west along Highland Valley Road for approximately 0.4 mile, then turns south on Pomerado Road.

The Proposed Project route travels south along Pomerado Road for approximately 7.5 miles through primarily residential areas.[1] At Oak Knoll Road, the Proposed Project route will connect with an existing approximately 1.1-mile-long pipeline segment, or pre-lay segment, located within Pomerado Road. Installation of new pipe will not be required along the pre-lay segment. The Proposed Project route will connect with the southern end of the pre-lay segment at Scripps Poway Parkway and continue south for approximately 4.2 miles. At Willow Creek Road/Avenue of Nations, the Proposed Project route turns southeast for approximately 0.27 mile. The Proposed Project route turns east along an unpaved aqueduct road for approximately 0.25 mile, then south along an unpaved road for approximately 0.5 mile before entering MCAS Miramar land. The Proposed Project route travels south through MCAS Miramar and parallel to an unpaved aqueduct patrol road for approximately 2.6 miles, until the pipeline terminates north of SR-52 at the existing Line 2010. Attachment 3-A: Detailed Route Maps shows the Proposed Project alignment and appurtenant facilities by approximate milepost (MP).

[1] On September 17, 2015, the CPUC released the Draft Environmental Impact Report (EIR) for the Sycamore-Peñasquitos 230 Kilovolt (kV) Transmission Line Project (Proposed SX-PQ Project), which included an underground alternative along Pomerado Road that would overlap with the Proposed Project alignment for approximately 3.2 miles. This alternative—Alternative 5: Pomerado Road to Miramar Area North Combination Underground/Overhead—was not proposed by SDG&E but has been determined in the CPUC's Draft EIR to be the Environmentally Superior Alternative. The Applicants are in the process of assessing the potential co-location of the Proposed SX-PQ Project and Proposed Project facilities within Pomerado Road, and plan to submit written comments summarizing their findings to the CPUC. It is anticipated that the CPUC will analyze any potential modifications, engineering considerations, and cumulative impacts associated with the potential co-location of the projects and that the EIR and route for the Proposed SX-PQ Project will be finalized in advance of the Draft EIR for the Proposed Project.

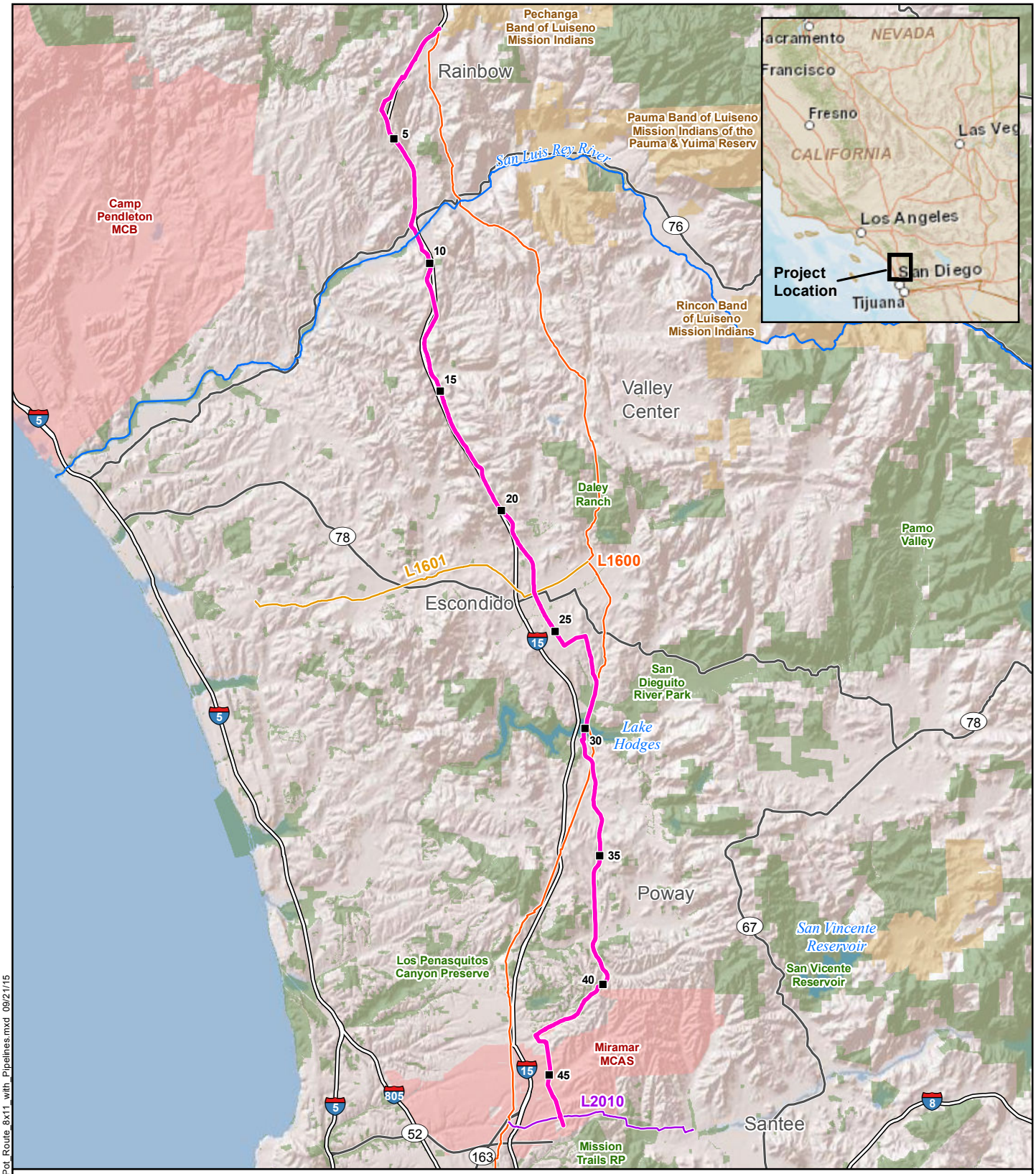

Figure 3-1: Project Overview Map **Pipeline Safety & Reliability Project**

- Milepost
- Proposed Project Route
- Line 1601
- Line 1600
- Line 2010
- Interstate
- Major Road/State Highway
- Parks
- Military
- Bureau of Indian Affairs

1:320,000
0 2 4 Miles

SoCalGas A Sempra Energy utility
SDGE A Sempra Energy utility
INSIGNIA ENVIRONMENTAL

\MXDs\PEA\PD\Fig_3_1_Pot_Route_8x11_with_Pipelines.mxd 09/21/15

3.1 EXISTING SYSTEM

SDG&E and SoCalGas, both subsidiaries of Sempra Energy, own and operate an integrated gas transmission system consisting of pipeline and storage facilities throughout Southern California. In March 1881, a small group of San Diego citizens organized a company to supply gas service to the City of San Diego and began construction of an oil gas manufacturing plant. The company was formally organized later in April 1881 as the San Diego Gas Company. On June 2, 1881, construction of the plant was completed and included three miles of mains, and the company began gas distribution to its first 89 customers. The capacity of the plant was 25,000 cubic feet per day and oil gas was made from crude petroleum. The oil gas plant was replaced in April 1883 by a coal gas plant and later expanded in 1886 to meet growth in the City of San Diego.

In May 1987, the Coronado Gas and Electric Company and the San Diego Gas Company merged to form the San Diego Gas & Electric Light Company. In April 1905, the company was sold and incorporated as San Diego Consolidated Gas & Electric Company. In 1906, coal gas generation was abandoned when a new oil gas generator was installed with a peak daily send-out that grew from 332,000 cubic feet in 1906 to 6,640,000 cubic feet in 1921. In 1932, manufactured gas was replaced by natural gas upon the construction of a pipeline connecting San Diego with natural gas field in the Los Angeles area. To supplement the natural gas supply when necessary, the oil gas plant was maintained until 1950.

In 1940, the company name was changed to SDG&E. In 1941, SDG&E's natural gas supply line capacity was 24,000,000 cubic feet per day and in 1949, a second transmission pipeline was built from Riverside County to bring gas to San Diego from out of the state.[2]

Presently, SDG&E provides electric and natural gas services to over 3 million people in San Diego County and southern Orange County. SDG&E's service territory covers approximately 4,100 square miles and includes approximately 250 miles of natural gas transmission pipelines and approximately 14,600 miles of distribution pipelines. SDG&E provides natural gas service to its residential, commercial, and electric generation (EG) customers—including the military, hospitals, and schools—through over 860,000 natural gas meters in San Diego County. The gas system in San Diego County begins at the Riverside County line to bring gas supplies originating in the southwestern United States (U.S.) to flow south to San Diego, utilizing two transmission pipelines and a compressor station located in Moreno Valley, California. SDG&E can also receive up to 400 million cubic feet per day (MMcfd) into the southern end of the gas system at Otay Mesa on the border with Mexico to flow north if supply is available.

A major component of the gas system in San Diego County that brings gas from the north is the compressor station in Moreno. The Moreno Compressor Station is located approximately 35 miles north of the San Diego County line in the Moreno Valley in Riverside County. The station has over 16,000 installed horsepower that boosts pressure, when necessary, to move higher gas volumes to meet San Diego County gas demand that could not be met through free-flowing gas supplies. Essentially, all gas supplies that come into San Diego County from the north pass through this compressor station. Customers may deliver gas to the Otay Mesa receipt point on

[2] The Journal of San Diego History SAN DIEGO HISTORICAL SOCIETY QUARTERLY July 1956, Volume 2, Number 3.

the Mexican border where the gas flows north to the major demand center in San Diego. This receipt point is linked by pipelines in Mexico to southwestern gas supplies via El Paso at Ehrenberg, Arizona and Costa Azul liquefied natural gas terminal in Baja Mexico. Since the receipt point was established in 2008, minimal flows have occurred to San Diego County. A more detailed description of the SDG&E gas transmission system in San Diego is provided in the paragraphs that follow. Figure 3-2: SDG&E Gas Transmission System Map depicts the Proposed Project in relation to the existing transmission system.

Natural gas is carried into the SDG&E service system from the north by the following three SoCalGas transmission pipelines:

- the 16-inch-diameter Line 1027,
- the 24-inch-diameter Line 1028, and
- the 36-inch/30-inch-diameter Line 6900.

Lines 1027, 1028, and 6900 transport gas from SoCalGas's Moreno Compressor Station to SDG&E's existing Rainbow Metering Station.

The SDG&E system is serviced by two main natural gas transmission lines that carry gas from SoCalGas's system—the 30-inch-diameter Line 3010 and the 16-inch-diameter Line 1600. Line 3010 and Line 1600 originate at the Rainbow Metering Station at the Riverside-San Diego county line, traverse San Diego County, and terminate at the southern boundary of the San Diego metropolitan area. Line 3010 was originally constructed in 1960 and transports approximately 90 percent of the entire gas supply to SDG&E's distribution system. Line 1600 was originally constructed in 1949 and transports approximately 10 percent of the entire SDG&E gas supply.

The SDG&E gas transmission system pipelines are interconnected at their approximate midpoint and again near their terminus points. The 16-inch-diameter Line 1601 interconnects Line 1600 and Line 3010 from the City of Escondido to the City of Carlsbad. At the southern end, the 30-inch-diameter Line 3011 and the 20-inch-diameter Line 2010 interconnect Line 3010 and Line 1600 through MCAS Miramar. Line 2010 then extends to the City of Santee where it interconnects with the 36-inch-diameter Line 3600, which continues south to a metering station in the community of Otay Mesa. In the community of Otay Mesa, the SDG&E system interconnects with the Transportadora de Gas Natural de Baja, California, S. de. R.L. de C.V. pipeline, providing another receipt point for supplies into SDG&E's and SoCalGas's systems, if needed.

SDG&E and SoCalGas operate and maintain their natural gas systems in accordance with Title 49, Part 192 of the CFR (Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards) and CPUC General Order (G.O.) 112-F, State of California Rules Governing Design, Construction, Testing, Operation, and Maintenance of Gas Gathering, Transmission, and Distribution Piping Systems.

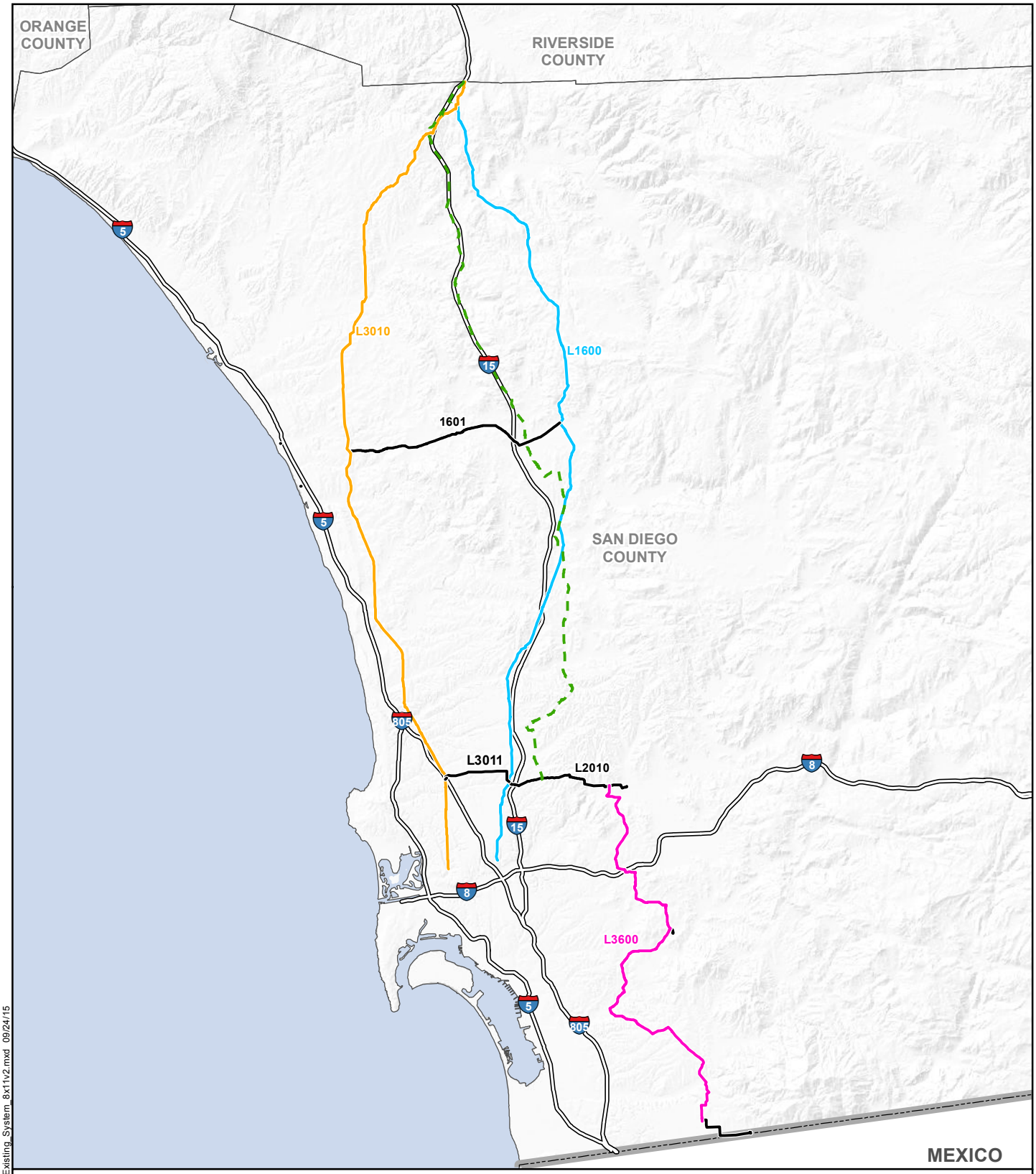

Figure 3-2: SDG&E Gas Transmission System Map **Pipeline Safety & Reliability Project**

- Proposed Project Route
- Line 1600
- Line 3010
- Line 3600
- Other Transmission Pipeline

1:500,000
0 2.5 5 Miles

\MXDs\PEA\PD\Fig_3_2_Existing_System_8x11v2.mxd 09/24/15

Through the Transmission Integrity Management Program, per Title 49, Part 192, Subpart O of the CFR, SDG&E and SoCalGas are required to identify threats to transmission pipelines in High Consequence Areas, determine the risk posed by these threats, schedule prescribed assessments to evaluate these threats, collect information about the condition of the pipelines, take actions to minimize applicable threat and integrity concerns to reduce the risk of a pipeline failure, and report findings to regulators.

Through the Distribution Integrity Management Program, under Title 49, Part 192, Subpart P of the CFR, SDG&E and SoCalGas are required to collect information about their distribution pipelines, identify additional information needed and provide a plan for gaining that information over time, identify and assess applicable threats to their distribution systems, evaluate and rank risks to the distribution system, determine and implement measures designed to reduce the risks from failure of their gas distribution pipelines and evaluate the effectiveness of those measures, develop and implement a process for periodic review and refinement of the program, and report findings to regulators.

SDG&E has experienced inter-daily and sometimes hourly spikes on the gas system. Accordingly, during peak gas demand periods on not just a daily but an hourly basis, SDG&E has already experienced curtailments, and SDG&E service areas have experienced calls for conservation. Since 2011, SDG&E has had five curtailment events related to supply, capacity, or emergencies on the SDG&E system. SDG&E has also experienced multiple curtailments during pipeline maintenance on Line 3010. In addition, SDG&E has had several "near curtailment" events that it has been able to mitigate with the coordination of large electric generation customers and the CAISO. The SDG&E gas transmission system within this service territory is depicted in Figure 3-2: SDG&E Gas Transmission System Map.

3.2 PROJECT OBJECTIVES

Details regarding the Proposed Project's objectives are included in Chapter 2 – Project Purpose and Need and Objectives. The objectives of the project are summarized as follows:

- Enable the Applicants to comply with the CPUC-approved Pipeline Safety Enhancement Plan (PSEP) by replacing Line 1600 with a new gas transmission pipeline as soon as is practicable. Construction of the new line will enable the use of Line 1600 for distribution while operating at a lower pressure. This replacement will not only comply with the PSEP, but it will also add a greater margin of safety by replacing Line 1600's transmission function with a new pipeline by using modern, state-of-the-art materials. In addition, replacement would avoid any potential customer impacts associated with pressure testing Line 1600.

- Simultaneously improve the reliability and resiliency of the Gas System by replacing Line 1600 with a 36-inch-diameter gas transmission pipeline so that core and noncore customers will continue to receive gas service in San Diego in the event of a planned or unplanned service reduction or outage of the existing 30-inch-diameter Line 3010 or the Moreno Compressor Station. San Diego County is essentially completely reliant on the compressor station in the City of Moreno Valley and Line 3010, which together provide approximately 90 percent of SDG&E's capacity. The Applicants are not aware of any

other major metropolitan area that is so dependent on a single pipeline. A system outage on Line 3010 or the Moreno Compressor Station would constrain available capacity in San Diego, which may lead to gas curtailments. This would be alleviated with the new 36-inch-diameter line providing resiliency for both Line 3010 and the Moreno Compressor Station.

- Simultaneously increase the transmission capacity of the Gas System in San Diego County by approximately 200 MMcfd as a result of the PSEP replacement line being 36 inches in diameter so that the Applicants can reliably manage the fluctuating peak demand of core and noncore customers, including EG and clean transportation. The new line would provide incremental pipeline capacity that would give flexibility to operate the SDG&E system by expanding the options available to handle stress conditions on a daily and hourly basis that put system integrity and customer service at risk.

3.3 PROPOSED PROJECT

The Proposed Project will expand the capacity of the SDG&E gas transmission system by 200 MMcfd and will improve the system's reliability. The Proposed Project will also replace and augment the capacity of Line 1600 and facilitate implementation of SDG&E's and SoCalGas's PSEP, which was approved by the CPUC (Decision D.14-06-007) in June 2014.[3] In CPUC Decision D.11-06-017, SDG&E and SoCalGas were, among other things, ordered to pressure test or replace those pipelines that were not pressure tested or lack sufficient documentation of a post-construction pressure test.[4]

The Proposed Project includes the construction, operation, and maintenance of the following components:

- approximately 47 miles of 36-inch-diameter natural gas transmission pipeline,
- approximately 10 MLVs spaced a maximum of five miles apart,
- one pressure-limiting station (i.e., the Rainbow Pressure-Limiting Station),
- three cross-tie facilities (i.e., Line 1600, Line 1601, and Line 2010),
- internal inspection launching and receiving equipment,
- cathodic protection system units with an estimated three rectifiers and three deep-well anode beds at three of the proposed MLVs, and
- an intrusion detection and leak monitoring system.

Attachment 3-A: Detailed Route Maps depicts the proposed transmission line route, as well as the anticipated locations of aboveground facilities. Additional details about the Proposed Project components are provided in the following sections.

[3] In the event that pressure testing a line poses unmanageable customer impacts, the Applicants have proposed to replace or abandon the line.

[4] Post-construction pressure testing was not required until 1961 with the adoption of CPUC G.O. 112; Line 1600 was installed in 1949.

3.4 PROJECT COMPONENTS

3.4.0 Transmission Pipeline

The Proposed Project will consist of approximately 47 miles of steel API 5L X-65[5] pipeline designed for a Maximum Allowable Operating Pressure (MAOP) of 800 pounds per square inch (psi). The outside diameter of the pipe will be 36 inches with a minimum wall thickness of 0.625 inch.

The pipeline will be designed, constructed, operated, and maintained in accordance with all applicable requirements included in the U.S. Department of Transportation (DOT) regulations in Title 49, Part 192 of the CFR Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, as well as CPUC standards embodied under G.O. 112-E. Furthermore, the Proposed Project has been developed in accordance with SDG&E's and SoCalGas's PSEP, pursuant to CPUC Decision D.11-06-017.

The pipeline will be installed approximately 42 inches below the ground surface using conventional trenching methods for urban and cross-country areas. Typical trench cross-sectional drawings are provided in Figure 3-3: Typical Trench Cross-Section – Urban and Figure 3-4: Typical Trench Cross-Section – Cross-Country. Drawings depicting a typical ROW cross-section in urban and cross-country areas are provided in Figure 3-5: Typical Urban ROW Cross-Section and Figure 3-6: Typical Cross-Country ROW Cross-Section, respectively. The pipeline alignment will cross several major roads, including I-15, as well as a number of water features, including the San Luis Rey River, Lake Hodges, Reidy Canyon Creek, and Escondido Creek. At these crossings, HDD and horizontal boring methods will be implemented to minimize impacts to riparian habitat and water quality. The anticipated locations where the HDD and horizontal boring methods will be utilized are depicted in Attachment 3-A: Detailed Route Maps. In addition, the pipeline will cross numerous existing utilities along the route, such as other natural gas pipelines, communication lines, aqueducts, sewers, and water pipelines. Major road, major utility, and sensitive resource crossings are shown in Table 3-1: Major Road, Utility, and Sensitive Resources Crossings. Other utilities will be identified through consultation with local jurisdictions and incorporated into the final design.

As discussed previously in Section 3.1 Existing System, gas will be supplied to the Proposed Project via Lines 3010 and 1600, both of which are fed by SoCalGas's Lines 1027, 1028, and 6900. A connection will be established between the Proposed Project and Line 3010 via a 20-inch-diameter pipeline that will connect the existing Rainbow Metering Station and the proposed Rainbow Pressure-Limiting Station. The Proposed Project will connect with Line 1600 immediately east of the proposed Rainbow Pressure-Limiting Station within Rainbow Valley Road via a 16-inch-diameter pipeline. The Proposed Project will also cross-tie with existing Line 1600 near MP 29.3 in the City of Escondido. In addition, the Proposed Project will cross-tie with existing SDG&E pipelines—Line 1601 and Line 2010—that carry gas in an east-west direction between the existing Line 3010 and Line 1600. The Line 1601 Cross-Tie will be established near MP 23.4 and the SR-78 crossing. The Line 2010 Cross-Tie will be established at the pipeline terminus, on MCAS Miramar

[5] API 5L X-65 refers to an American Petroleum Institute standard and indicates that the pipe has a minimum yield strength of 65 kilopounds per square inch (ksi), tensile strength of 77 ksi, maximum tensile ratio of 0.93, and minimum elongation of 18 percent.

north of SR-52. No existing pipelines within the regional system will require improvements or relocation as a result of the Proposed Project. No commercial or residential property will require relocation as a result of the Proposed Project.

Details regarding the construction methods that will be used to construct the transmission pipeline are described in further detail in Section 3.6 Construction. Workspace requirements to install and operate the pipeline are described in Section 3.5 ROW Requirements.

Pre-Lay Segment

The Proposed Project will connect with an existing pre-lay segment located in Pomerado Road between MP 37.9 and MP 39.0. The pre-lay segment was installed in 1994 on the west side of Pomerado Road, beginning at Oak Knoll Road and traversing south for approximately one mile to its terminus at Scripps Poway Parkway. The pre-lay pipe consists of a 36-inch-diameter, API 5L X-60 steel pipe with a 0.500-inch wall thickness.[6] It was installed with a cement sand slurry backfill approximately 12 inches above the pipe. In addition, the pre-lay pipe was coated with fusion-bonded epoxy, cathodically protected, and hydrostatically tested for a MAOP of 800 psi. A set of double caution tapes were installed approximately 18 inches below grade, and a second set of double caution tapes were installed approximately 18 inches below the first set. The pre-lay segment is currently operating at 400 psi and is maintained as part of a distribution loop system.

Three eight-inch distribution pipelines are currently connected to the pre-lay segment, with one at each end of the pre-lay segment and one at the segment's midway point at the intersection of Stowe Drive and Pomerado Road. In order to utilize the pre-lay segment, three regulator stations will be installed on the distribution lines. Each regulator station will be located below grade inside two concrete vaults each measuring approximately seven feet by seven feet. The proposed regulator stations are anticipated to be located within the existing road or in a previously disturbed location immediately adjacent to the road. No permanent aboveground facilities will be installed at the regulator stations, with the exception of steel vault covers and a steel pole measuring approximately nine feet high and two inches in diameter with an electronic pressure monitoring box mounted on it. Near the top of the pole will be a small solar panel measuring approximately two feet by two feet.

In order to tie into the pre-lay segment, the existing distribution pipelines will be cut and capped, and the pre-lay segment will be purged of natural gas resulting in the release of approximately 1.02 million cubic feet of natural gas to the atmosphere. The three distribution pipelines will be temporarily supplied by a portable liquefied or compressed natural gas system. The unit will be stored in a temporary workspace located adjacent to Pomerado Road; however, the location has not yet been determined. It is estimated that approximately 150 feet by 150 feet of temporary workspace will be necessary to store the temporary gas supply.

[6] API 5L X-60 refers to an American Petroleum Institute standard and indicates that the pipe has a minimum yield strength of 60 kilopounds per square inch (ksi), tensile strength of 75 ksi, maximum tensile ratio of 0.93, and minimum elongation of 19 percent.

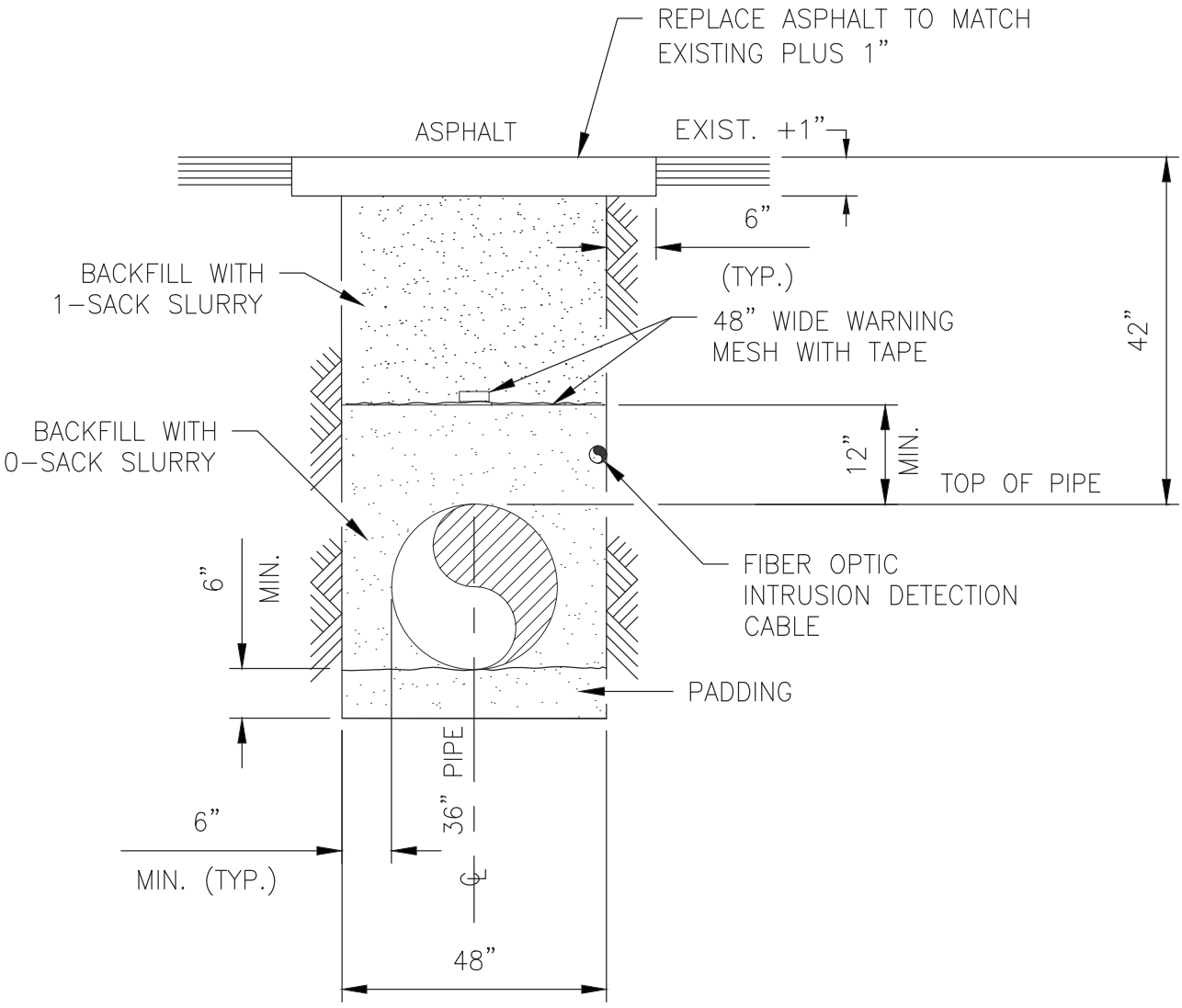

Figure 3-3: Typical Trench Cross-Section – Urban

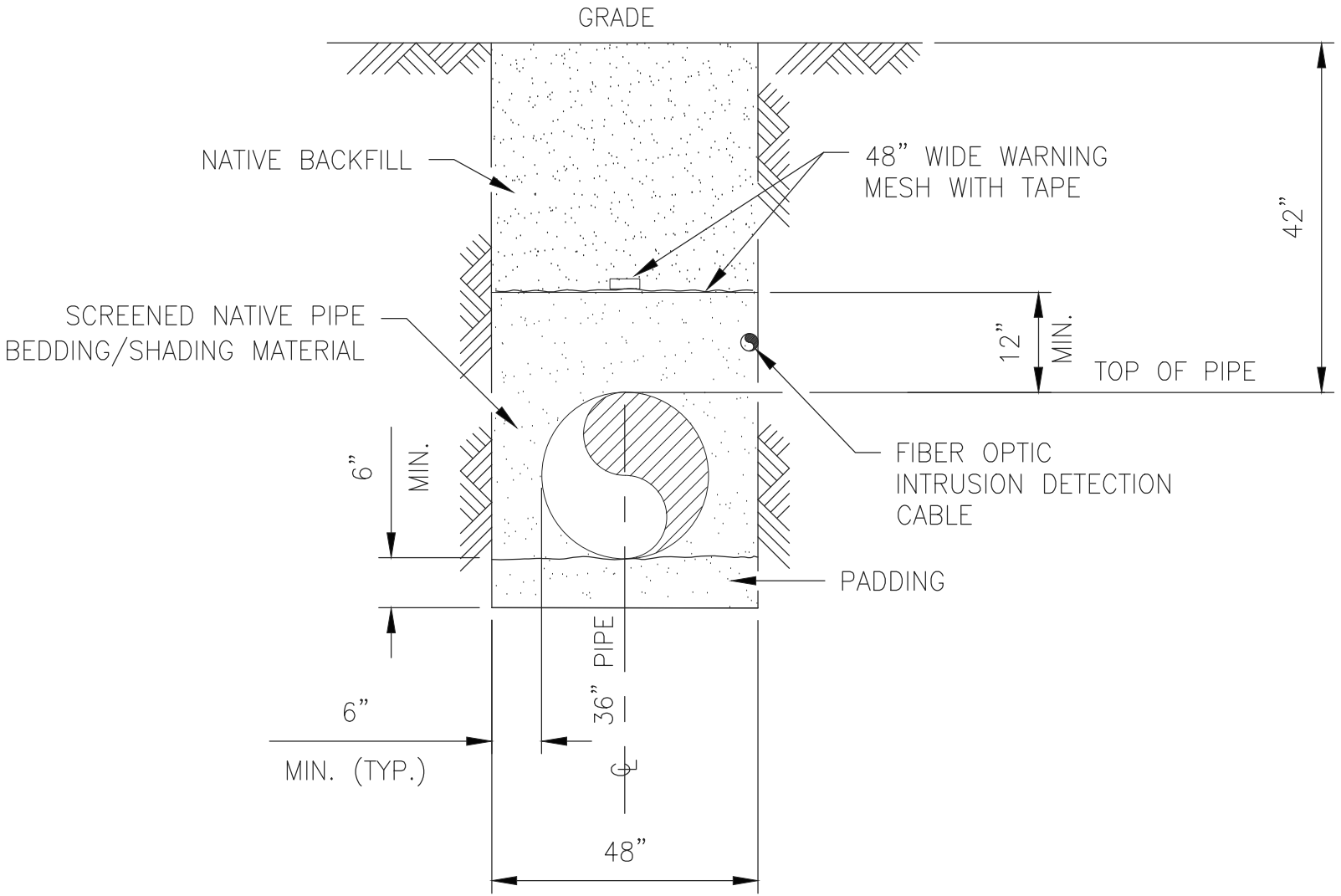

Figure 3-4: Typical Trench Cross-Section – Cross-Country

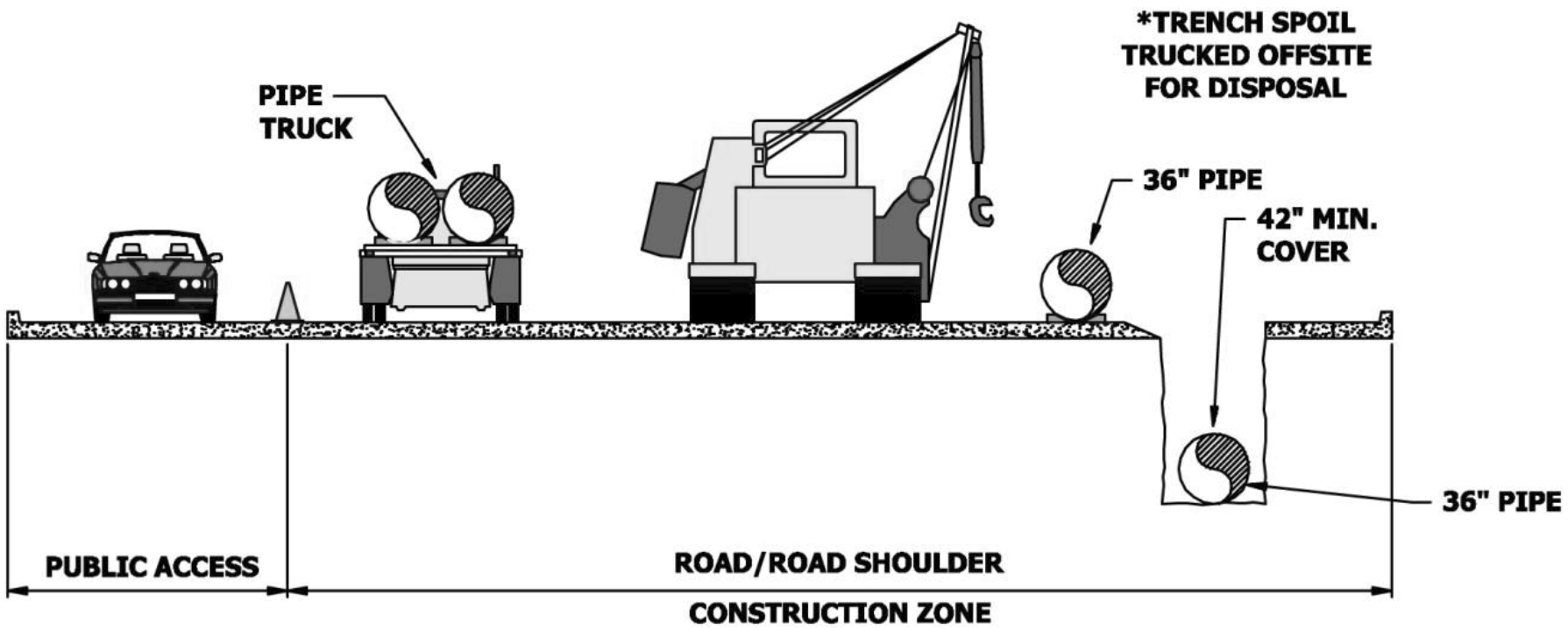

Figure 3-5: Typical Urban ROW Cross-Section

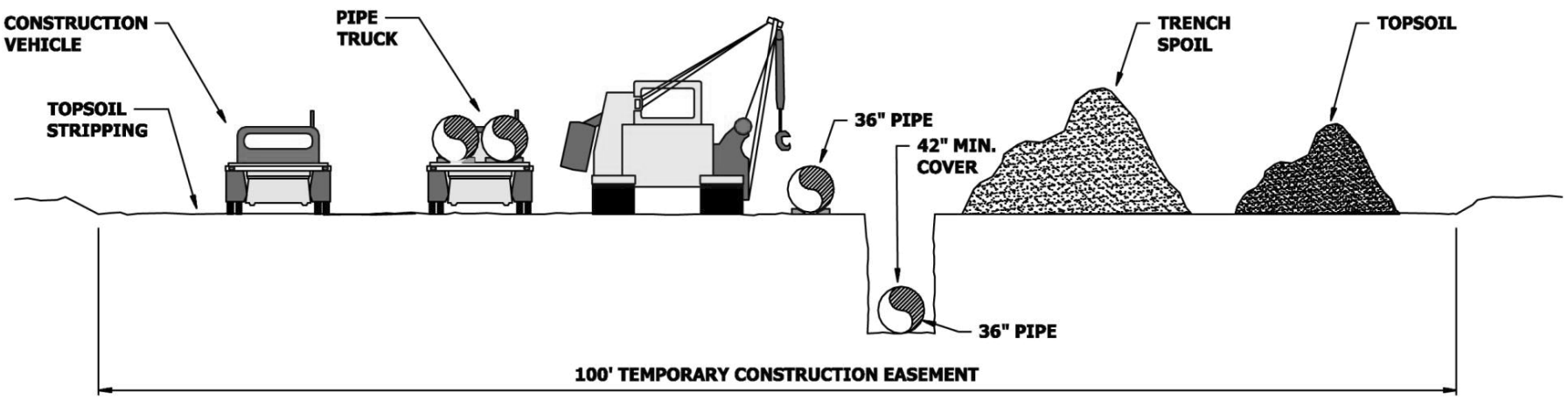

Figure 3-6: Typical Cross-Country ROW Cross-Section

Table 3-1: Major Road, Utility, and Sensitive Resources Crossings

Feature	Approximate MP	Anticipated Crossing Method	
		HDD	Horizontal Bore
Major Road Crossings			
SR-76	8.4		●
I-15	11.2	●	
SR-78 On-Ramp	23.3		●
Major Utility Crossings			
San Diego Aqueduct	0.03		●
230 kV Overhead Powerline	0.2	--	--
30-inch-diameter Natural Gas Pipeline	3.8		●
San Diego Aqueduct	4.7		●
69 kV Overhead Powerline	7.2	--	--
Vista Canal	20.8		●
69 kV Overhead Powerline	21.6	--	--
230 kV Overhead Powerline	21.7	--	--
69 kV Overhead Powerline	21.7	--	--
69 kV Overhead Powerline	23.5	--	--
69 kV Underground Powerline	23.7	--	--
69 kV Overhead Powerline	25.3	--	--
69 kV Overhead Powerline	26.6	--	--
69 kV Overhead Powerline	27.3	--	--
69 kV Overhead Powerline	27.4	--	--
16-inch-diameter Natural Gas Pipeline	28.3		●
16-inch-diameter Natural Gas Pipeline	31.5		●
69 kV Overhead Powerline	35.6	--	--
69 kV Overhead Powerline	35.7	--	--
8-inch-diameter Natural Gas Pipeline	35.7	--	--
8-inch-diameter Natural Gas Pipeline	37.9	--	--

Feature	Approximate MP	Anticipated Crossing Method	
		HDD	Horizontal Bore
8-inch-diameter Natural Gas Pipeline	38.0	--	--
8-inch-diameter Natural Gas Pipeline	40.3	--	--
230 kV Overhead Powerline	39.8	--	--
138 kV Overhead Powerline	39.8	--	--
69 kV Overhead Powerline	39.8	--	--
69 kV Overhead Powerline	42.9	--	--
San Diego Aqueduct	42.9		●
San Diego Aqueduct	43.8		●
San Diego Aqueduct	46.6		●
Sensitive Resource Crossings			
San Luis Rey River	8.8	●	
Reidy Canyon Creek	22.4		●
Escondido Creek	24.1		●
Lake Hodges/San Dieguito River	29.6 – 30.2	●	

Once the distribution system is connected to a temporary supply, bell holes will be excavated at each end of the pre-lay segment and the existing pipeline will be tied into the Proposed Project. Following installation of the regulator stations and hydrostatic testing of the Proposed Project, the gas supply will be reestablished to the distribution system and the temporary supply will be removed.

3.4.1 Aboveground Facilities

The majority of aboveground equipment will be pre-fabricated at a staging area and then transported to the respective locations for final assembly and tie-in to the pipeline. The aboveground equipment that will be appurtenant to the pipeline is described in the following subsections.

Mainline Valves

Ten new MLVs will be installed along the pipeline to shut down the flow of gas during operation and maintenance activities or emergency situations. The valves will be installed in accordance with U.S. DOT regulations in Title 49, Part 192 of the CFR and G.O. 112-E, and will allow the Applicants to meet or exceed their criteria for isolation and depressurization of designated sections of the pipeline in less than 30 minutes in the event of a pipeline failure. The valves will be designed for automatic shut-off without operator intervention in the event of loss of pressure and remote operation by the SDG&E and SoCalGas's Gas Control Department.

Each valve will be installed within the permanent easement, but additional temporary workspace may be required to construct the valve and enclosure. Workspace required to construct each valve will be located in previously disturbed, undeveloped areas to the extent feasible. The permanent footprint of the valve sites will measure approximately 50 feet by 75 feet. The valves will be installed underground, and the valve controls will be installed aboveground. Components that may be constructed within the MLV sites will include a 36-inch-diameter valve, actuators, control cabinets, a 30-foot-high antennae pole and possible solar panel, and a 10-inch-diameter or 12-inch-diameter blowoff valve and stack situated approximately three feet above the ground.

After installation, all aboveground piping and equipment will be enclosed within an approximately six-foot-high, concrete, earth-toned block wall for security purposes. In urban areas, valves will be located adjacent to the road, and a driveway to access the valve site will be established, if needed. A typical MLV is shown in Figure 3-7: Typical Mainline Valve. The actual number of valves and their locations are contingent on the final alignment, land availability, and final pipeline design; however, the anticipated preliminary locations and the dimensions of the valves are shown in Attachment 3-A: Detailed Route Maps and listed in Table 3-2: Mainline Valve Locations. At a minimum, valves will be located every five miles along the entire pipeline route.

Table 3-2: Mainline Valve Locations

MLV Number	Approximate MP	Location[7]	Page Number in Attachment 3-A: Detailed Route Maps
1	1.5	Adjacent to and east of Old Highway 395 at the edge of an agricultural field.	2
2	6.2	Within a cleared vacant lot adjacent to and east of Old Highway 395, between Canonita Drive and Tecalote Lane.	6
3	10.9	Adjacent to and east of Old Highway 395 in a road pullout immediately south of the entrance to the Waterwise Botanicals nursery.	10
4	15.4	Adjacent to and west of Old Highway 395/Champagne Boulevard, between Welk View Drive and Lawrence Welk Lane.	14
5	19.9	Adjacent to and east of North Centre City Parkway, north of its intersection with Jesmond Drive, within a partially cleared area along the road.	18
6	24.6	Within a landscaped roadway island bordered by South Pine Street to the west, Centre City Parkway to the east, and West 5th Avenue to the south.	22
7	29.3	Within an undeveloped area south and east of Bear Valley Parkway and adjacent to Mule Hill Trail. This valve is collocated with the Line 1600 Cross-Tie facility.	26
8	34.0	Adjacent to and east of Pomerado Road in a vacant lot located immediately south of the Pomerado Christian Church driveway.	30
9	38.8	In a landscaped area adjacent to Pomerado Road, just west of a sidewalk.	35
10	42.8	In an undeveloped area south of Pomerado Road and east of its intersection with Scripps Ranch Row, abutting an existing SDG&E electrical distribution line easement.	38

[7] The location of the MLVs are anticipated to shift or move during initial design to account for existing utilities, land availability, and utilization of the pre-lay segment.

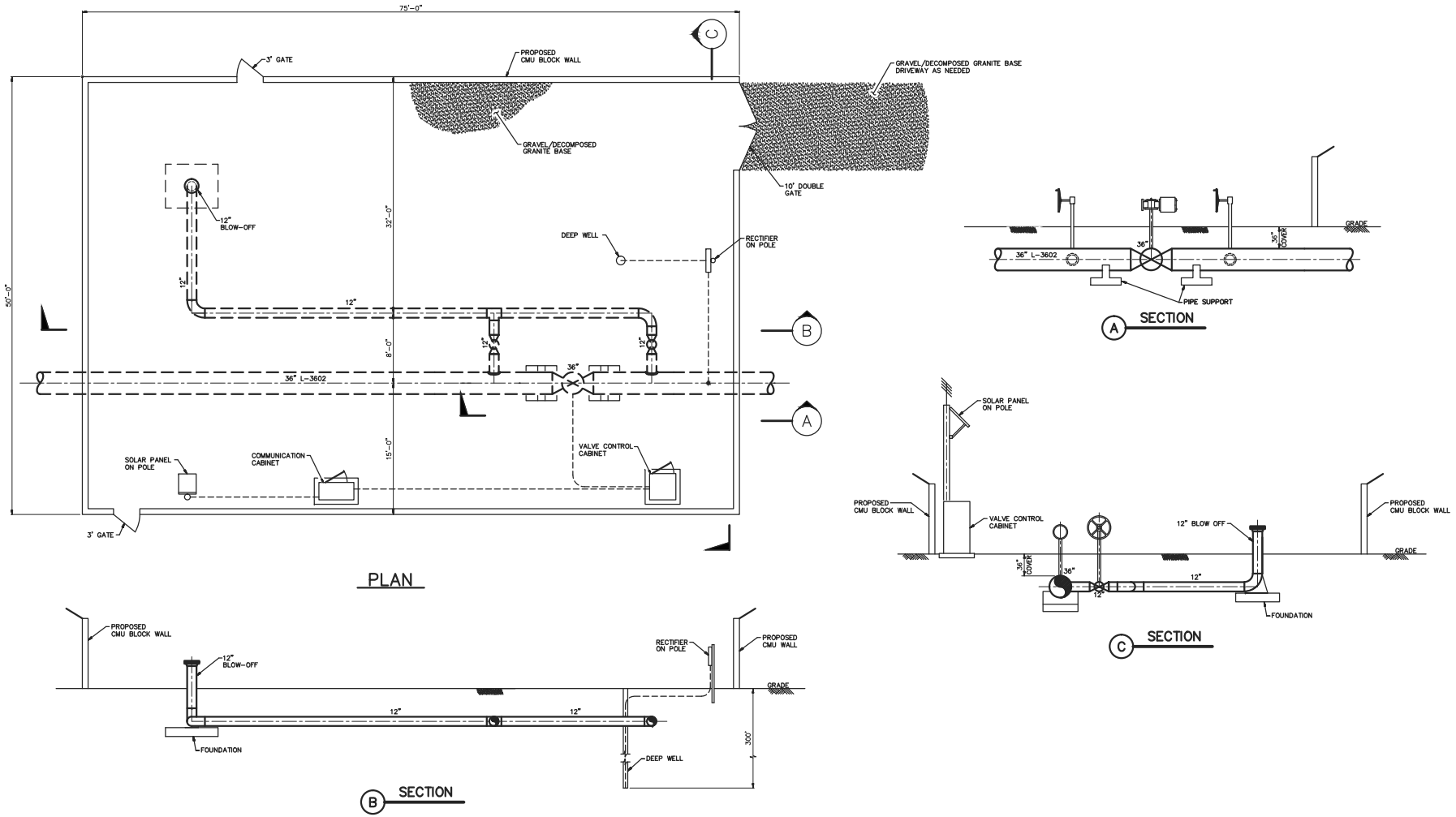

Figure 3-7: Typical Mainline Valve

Rainbow Pressure-Limiting Station

The Proposed Project will include construction of one new pressure-limiting station—the Rainbow Pressure-Limiting Station—which will prevent over-pressurizing of interconnected pipelines that operate at different operating pressures. The proposed Rainbow Pressure-Limiting Station will be located approximately 50 feet south of the existing Rainbow Metering Station on a parcel of land owned by SDG&E. The graveled site will have an approximately 0.24-acre footprint. The site will be enclosed by a six-to eight-foot-high concrete block wall, and will be accessible by two approximately 20-foot-wide swing gates and two approximately four-foot-wide pedestrian gates. Pressure-limiting valves that measure 16 inches in diameter will be installed underground, with valve controls installed aboveground and enclosed by a cabinet. In addition to pressure-limiting equipment, the proposed pressure-limiting station will contain a pig launcher.[8]

The pressure-limiting station will also be equipped with supervisory control and data acquisition (SCADA) equipment, as well as the ability to blowdown the pipeline for rapid removal of natural gas in order to shut down the pipeline during planned maintenance activities or in the event of an emergency. SCADA service will be provided via a land line or satellite service. Communication equipment will be installed within a cabinet. Power service for the station will be obtained from a nearby SDG&E distribution line. Access to the station will be via an existing unpaved driveway from Old Highway 395 and a permanent driveway that will be constructed from Rainbow Valley Boulevard. A site plan for the pressure-limiting station is provided in Figure 3-8: Rainbow Pressure-Limiting Station Site Plan.

Line 1601 Cross-Tie

The Line 1601 Cross-Tie will interconnect the Proposed Project with the existing 16-inch-diameter Line 1601 near the SR-78 crossing near MP 23.4 in the City of Escondido. The graveled site will have an approximately 0.2-acre footprint, and the majority of the site will be located on SDG&E property. The site will be enclosed by a six- to eight-foot-high concrete block wall, accessible by an approximately 20-foot-wide swing gate and an approximately four-foot-wide pedestrian gate. The cross-tie will be established via a 16-inch-diameter pipeline that will tee from the Proposed Project, extend approximately 100 feet in a horizontal bore under the SR-78 on-ramp, and tie into the existing Line 1601 with a 16-inch-diameter ball valve. Valve controls will be installed aboveground and enclosed in a cabinet. Communication equipment will also be installed within the cross-tie site and enclosed in a cabinet. Power service will be obtained from a nearby SDG&E distribution line. Access will be via an existing paved driveway off of Lincoln Avenue. A site plan is included in Figure 3-9: Line 1601 Cross-Tie Site Plan.

Line 1600 Cross-Tie

The Line 1600 Cross-Tie will include an interconnection between the existing 16-inch-diameter Line 1600 and the Proposed Project, pressure-limiting equipment, and MLV 7. The approximately 0.1-acre graveled site is located approximately 300 feet south of Bear Valley Parkway along Mule Hill Trail (an unpaved road) near MP 29.3. A six- to eight-foot concrete block wall will be constructed

[8] Pig launchers and pig receivers are installed on pipelines to launch and receive pipeline pigs and pipeline inspection tools. The launchers and receivers are welded to the pipeline below ground and extend above the ground surface so that they can be accessed during operation and maintenance activities.

around the site, with one approximately 20-foot-wide swing gate and an approximately six-foot-wide pedestrian gate. Pressure-limiting valves, measuring eight inches in diameter, as well as MLV 7 will be installed underground, with valve controls installed aboveground and enclosed within cabinets. Communication equipment will also be installed within the cross-tie site and enclosed in a cabinet. Communication equipment within the facility will be powered by a solar panel. Access to the site will be via Mule Hill Trail. A site plan for the Line 1600 Cross-Tie is provided in Figure 3-10: Line 1600 Cross-Tie Site Plan, and a visual simulation is depicted in Figure 4.1-1: Visual Simulation – Line 1600 Cross-Tie in Section 4.1 Aesthetics.

Line 2010 Cross-Tie

The Line 2010 Cross-Tie will be constructed at the Proposed Project terminus on MCAS Miramar land. Two approximately 1,800-foot-long (0.34-mile), 20-inch-diameter pipelines will extend north from the cross-tie facility to the existing Line 2010 to establish the cross-tie. The cross-tie pipelines will be installed within the Proposed Project easement. The approximately 0.3-acre (100-foot by 150-foot) graveled cross-tie site will include a 42-inch by 36-inch pig receiver, valve control equipment, communication equipment, and a solar panel for power. The facility will also be equipped with SCADA equipment and the ability to blowdown the pipeline for rapid removal of natural gas in order to shut down the pipeline during planned maintenance activities or in the event of an emergency. The valve will be installed in accordance with Title 49, Part 192 of the CFR and CPUC G.O. 112-E, and will allow the Applicants to meet or exceed their criteria for isolation and depressurization of designated sections of the pipeline in less than 30 minutes in the event of a pipeline failure. An approximately 20-foot communication pole will be installed for SCADA service.

The site will be surrounded by a concrete block wall measuring six to eight feet in height and will include two approximately 20-foot-wide swing gates and two approximately four-foot-wide pedestrian gates. A gravel driveway will provide access to the site from the existing unpaved aqueduct road. A site plan for the Line 2010 Cross-Tie is provided in Figure 3-11: Line 2010 Cross-Tie Site Plan.

Cathodic Protection System

The cathodic protection system consists of cathodic protection rectifiers, buried anodes, and test stations that will be situated along the pipeline. An estimated three rectifiers and three deep-well anode beds will be installed at approximately three of the proposed MLVs. However, the locations could change during the final design of the pipeline. The cathodic protection rectifier can be located anywhere along the pipeline where an electric power drop is available, but the design will be based on locating them at valves where they can be situated behind a block wall. Each rectifier will require a utility pole to provide power and an electric meter. The rectifier and electric meter will be mounted on the power pole. The anode bed will be installed vertically below grade near the aboveground power pole at a depth between 150 feet and 500 feet. Typically, the anode bed is a deep well anode that is installed by drilling a hole and inserting the anodes into the hole. Each anode will have a coated wire lead that will be connected to the rectifier. The anode bed will be located in close proximity to the proposed pipeline and rectifier. The rectifier will be connected to the pipeline to establish protection.

VICINITY MAP

SCALE: N.T.S.

Figure 3-8: Rainbow Pressure-Limiting Station Site Plan

VICINITY MAP

SCALE: N.T.S.

Figure 3-9: Line 1601 Cross-Tie Site Plan

Figure 3-10: Line 1600 Cross-Tie Site Plan

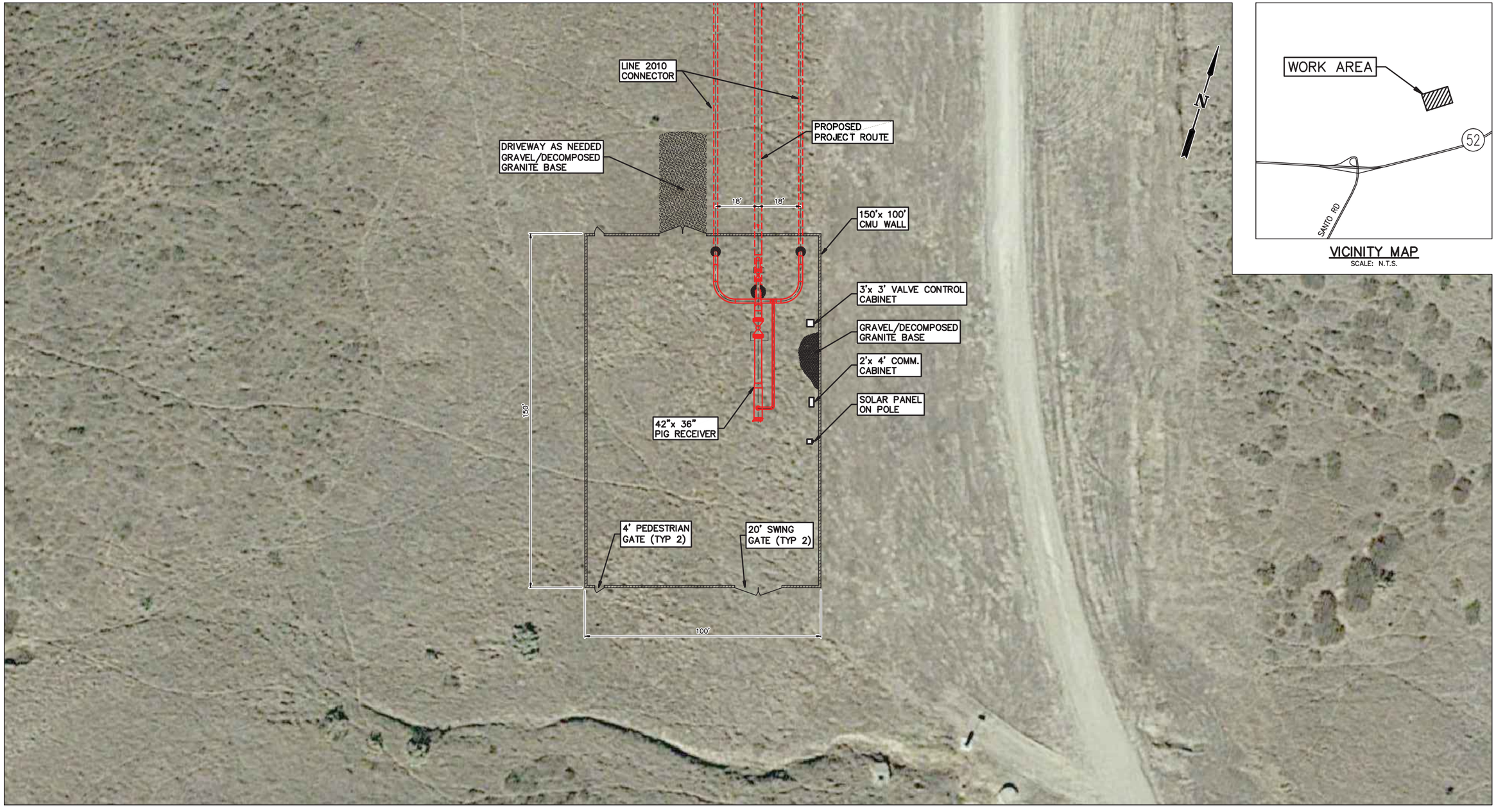

Figure 3-11: Line 2010 Cross-Tie Site Plan

Cathodic protection test stations will be installed at approximately 2,000-foot intervals along the pipeline. Wires will be connected to the pipeline and brought to the surface to an approximately three-foot-high above-grade polyvinyl chloride cylinder within the ROW. In urban areas, a street surface access road cover will be used.

Intrusion Detection Monitoring System

The Proposed Project will be equipped with an advanced ROW intrusion detection and monitoring system to provide early warning when digging, drilling, boring, cutting, compacting, or unplanned vehicle operations pose a threat to pipeline integrity. The system will also continuously monitor for ground movement and temperature gradients associated with an unplanned release of gas from the pipeline. The monitoring system may consist of fiber optic cable buried above and/or adjacent to the pipeline. If so, the fiber optic cable will be wired to a system monitoring station collocated with SCADA equipment, and the monitoring stations will require a maximum of one kilowatt of power, and will be located where utility power can be secured to provide power.

In addition, a 48-inch-wide warning mesh/tape will be installed along the length of the pipeline trench as a visual barrier and early warning device. The warning mesh/tape will be installed at least one foot below grade on top of the pipeline, except in areas where the pipeline has been installed with trenchless technology (e.g., HDDs and horizontal bores).

Leak Detection Monitoring System

To further support the early detection and management of unplanned gas releases, gas detection sensors will be employed at key locations along the pipeline route, including locations where the pipeline is in close proximity to facilities that require special consideration for evacuation and/or could result in commerce impacts in the event of a pipeline incident. The system will provide near-real-time alarm notification to operations personnel if gas concentration levels indicate a potential gas release. The system might include the installation of fiber optic equipment along and above the pipeline and in high consequence areas (e.g., schools or hospitals), and may include methane detectors, which will be collocated with MLVs, if feasible.

3.5 ROW REQUIREMENTS

Permanent and temporary land requirements will be necessary to construct, operate, and maintain the Proposed Project. Details regarding land requirements are provided in the following subsections.

3.5.0 Permanent Land Requirements

The Proposed Project will require an approximately 50-foot permanent linear easement along the entire alignment for operation and maintenance of the pipeline. As described in Section 3.0 Project Location, approximately 87 percent (approximately 41 miles) of the Proposed Project will be installed in urban areas within existing roadways and road shoulders. The remaining approximately 13 percent (approximately six miles) of the Proposed Project will be installed cross-country on federal land or privately owned land. Approximately 8.1 miles (49.1 acres) of the Proposed Project will require new ROW, approximately 1.7 acres of new acquisition will be needed for appurtenant facilities, and approximately 0.3 acre will be located on SDG&E-owned

property. The remainder of the Proposed Project will be installed pursuant to franchise agreements along roadways. With the exception of the Line 1601, Line 1600, and Line 2010 cross-ties, all aboveground facilities will be located within the approximately 50-foot permanent easement or on SDG&E-owned property. Permanent land requirements are summarized in Table 3-3: Permanent Land Requirements.

The majority of the Proposed Project was routed along existing roadways to minimize acquisition of new ROWs. Where the pipeline could not be routed along existing roadways, the pipeline was routed parallel to existing utility ROWs to the extent possible. Table 3-4: Locations of Coinciding ROWs lists locations where the pipeline is located adjacent and parallel to an existing ROW.

3.5.1 Temporary Land Requirements

Staging Areas

Pipe is anticipated to be shipped by rail and stored at an existing rail yard in the City of Fontana. The pipe will be transported by truck from the Fontana rail yard to one of the proposed staging areas or directly to the ROW. Approximately six staging/laydown yards have been preliminarily identified to facilitate construction activities and provide locations for the construction contractor to meet, carpool, store equipment, house office trailers, and park and maintain equipment. Each staging area is located in a previously disturbed area that is accessible from an existing road and measures one to five acres. Site preparation will include installation of erosion and sediment control devices, as well as fencing and grading if necessary. Site security, including a security guard, cameras, and locked gates may be used at some or all of the staging areas. The preliminarily identified staging areas are depicted in Attachment 3-A: Detailed Route Maps and are listed in Table 3-5: Approximate Staging Area Locations and Descriptions. Additional or alternative staging areas may be identified by the construction contractor at the time of construction, depending on availability, construction sequencing, and the schedule. Existing SDG&E and/or SoCalGas facilities may also be used as temporary staging areas.

Temporary Work Areas

In general, the temporary workspace required for construction will be limited to the road and road shoulder in urban areas, and will be up to 100 feet wide in cross-country areas. Additional temporary workspace will also be required at HDD and horizontal boring sites. Attachment 3-A: Detailed Route Maps depicts the temporary workspace needed during construction. However, the actual limits will be determined during the final design and may vary slightly based on site-specific conditions.

Access Roads

The Proposed Project will be accessed by existing public roadways and unpaved roadways that intersect paved roadways adjacent to the route. One unpaved access road—Aqueduct Road—will be used during construction of the Proposed Project on MCAS Miramar. No improvements will be required along this road. Vehicles and equipment will also travel along the ROW in cross-country areas where the ROW is graded. No new permanent access roads will be constructed as part of the Proposed Project.

Table 3-3: Permanent Land Requirements

Aboveground Facility	Permanent Land Requirements	
	Approximate Dimensions (feet)	Approximate Area (acres)
Rainbow Pressure-Limiting Station	Not Applicable (N/A)[9]	0.24
Line 1601 Cross-Tie	80 by 80	0.15
Line 1600 Cross-Tie	50 by 75	0.09
Line 2010 Cross-Tie	100 by 150	0.34
MLVs	50 by 75 feet	0.09
Cathodic Protection System Units	N/A[10]	N/A
Leak Detection Monitoring Equipment	6 by 6	<0.001

Table 3-4: Locations of Coinciding ROWs

ROW	Approximate MP
Second San Diego Aqueduct	0.05 – 1.4
Line 1600	28.2 – 29.3
Line 1600	29.3 – 29.8
Second San Diego Aqueduct	43.7 – 43.8
Second San Diego Aqueduct	43.8 – 46.6
Second San Diego Aqueduct	46.7 – 47.0

[9] The Rainbow Pressure-limiting Station has been designed to the existing SDG&E-owned parcel, which is irregularly shaped. The dimensions are roughly 100 feet by 100 feet.

[10] The cathodic protection units will be installed within the walled limits of the MLVs and will not result in any additional impacts or land requirements beyond those identified for the MLVs.

Table 3-5: Approximate Staging Area Locations and Descriptions

Laydown Yard	Approximate MP	Location[11]	Approximate Area (acres)	Description of Site	Improvements Required	Page Number in Attachment 3-A: Detailed Route Maps
Laydown Yard #1	0.0	Old Highway 395 and Rainbow Valley Boulevard	1.2	Laydown yard	Fencing	1
Laydown Yard #2	3.2	Rainbow Hills Road	2.2	Staging area/ laydown yard	Fencing, lighting, mowing/grubbing, minor grading, and installation of gravel for driveway	3, 4
Laydown Yard #3	7.7	Old Highway 395 and Pala Mesa Drive	2.0	Laydown yard	Fencing, mowing/grubbing, minor grading, and installation of gravel for driveways	7
Laydown Yard #4	14.7	Champagne Boulevard and Boulder Knolls Road	5.0	Staging area/ laydown yard	Fencing, lighting, mowing/grubbing, minor grading, and installation of gravel for driveway	13
Laydown Yard #5	20.8	North Nutmeg Street and North Centre City Parkway	2.0	Laydown yard	Fencing, minor grading, and installation of gravel for driveways	18, 19
Laydown Yard #6	30.4	Pomerado Road and Highland Valley Road	5.0	Main staging area/ laydown yard	Fencing and lighting	27

[11] The staging areas were located based on assumed requirements for construction staging and available space along the Proposed Project route. However, the locations of the staging areas may be shifted or moved to meet the needs of construction contractors.

3.6 CONSTRUCTION

3.6.0 Mobilization and Staging

Mobilization activities include the installation of temporary construction trailers and temporary security fencing and the delivery of materials and equipment to the job site. Prior to construction, the contractor will establish staging areas for materials and equipment storage, as previously described in Section 3.5.1 Temporary Land Requirements. Temporary power will be supplied to the staging areas by portable generators or through connections to nearby electrical lines, if available. Construction equipment will also be staged along the route during construction and will progress with the pipe installation. Figure 3-12: Typical Urban Construction Sequence and Figure 3-13: Typical Cross-Country Construction Sequence provide typical drawings that depict equipment staging as construction progresses along the route.

3.6.1 Surveying, Staking, and Flagging

The Applicants will mark the centerline at line-of-sight intervals, at points of intersection (including offset stakes marking the edges of the ROW), and at all known underground facilities. Other utilities will be identified through the use of pipeline locators. Substructures will be exposed by potholing prior to excavation. The Applicants will also clearly mark any sensitive biological, cultural, paleontological, or hydrological resources, where appropriate, to restrict construction activities and equipment from entering these areas. Staking will be installed to delineate any temporary work area or ROW boundary in cross-country areas. In urban areas, the ROW limits will generally not be marked in the field and will correspond to existing markers, such as the roadway prism[12] or specific lanes, in accordance with a Traffic Management Plan (TMP)[13] prepared for the Proposed Project.

3.6.2 Clearing and Grading

The temporary construction ROW will primarily utilize the roadway and road shoulder in urban areas where clearing and grading will be limited. Tree trimming may occur where branches or brush could be damaged by vehicles or heavy equipment. In addition, ornamental or specimen trees located in close proximity to the centerline of the pipe will need to be removed or trimmed in order to complete the trenching activities described in Section 3.6.4 Trenching. Every effort will be made to avoid trees or trim the minimum necessary to install the pipe. However, if removal is necessary to install the pipe, or if trenching activities will substantially damage the root systems, trees will be removed during the clearing and grading phase.

In cross-country areas, where necessary, clearing will begin with the removal of brush and other materials, which will then be windrowed along the edge of the ROW or disposed of in accordance with instructions from the jurisdictional agencies and/or landowners. When present

[12] A roadway prism is defined as an area consisting of the road surfaces and any cut slope and road fill.

[13] Prior to construction, the Applicants will prepare a comprehensive TMP in accordance with Applicants-Proposed Measure (APM-) TRA-01. The TMP will address all potential traffic-related impacts resulting from construction and operation of the Proposed Project, including details of the locations of ROW limits for the length of the Proposed Project. Additional information on Proposed Project-related traffic impacts and APMs can be found in Section 4.16 Transportation and Traffic.

and required, topsoil[14] will be removed during clearing and grading operations and segregated from subsoil. At a minimum, the first two to four inches of surface topsoil (where present) will be stripped across the entire ROW. The topsoil will be preserved and stored separately from subsoil for subsequent ROW restoration activities. In most areas where topsoil segregation will occur, the topsoil will be windrowed along the edge of the temporary construction easement. Figure 3-6: Typical Cross-Country ROW Cross-Section depicts the anticipated temporary storage configuration of topsoil and trench spoil.

3.6.3 Hauling and Stringing the Pipe

The pipe will be shipped by rail to a nearby rail yard and stored at the rail yard or at a staging area until it is ready for use on the ROW. Cranes will then load the pipe onto trucks to be delivered to the construction ROW and strung along the trench just prior to installation. Once on the ROW, sideboom tractors will unload the joints of pipe, placing them along the trench line for line-up, welding, and installation. Figure 3-13: Typical Cross-Country Construction Sequence depicts the equipment and temporary pipe storage along the ROW in rural areas. Figure 3-12: Typical Urban Construction Sequence depicts the equipment and temporary pipe storage along the ROW in urban areas.

3.6.4 Trenching

The typical trench will be seven to eight feet deep and five to six feet wide. At crossings of existing pipelines and other substructures, excavations will generally be deeper and wider, as necessary, to accommodate shoring and to clear the existing substructures, which are at various depths. The pipeline will exceed the minimum depth of cover required by the U.S. DOT, which is typically 36 inches.

The trench will be excavated using rubber-tired backhoes, ditching machines, and/or tracked excavators. When working in close proximity to live overhead power lines, trenching—as well as other construction activities, such as stringing and lowering-in—can be challenging. Tracked excavators and other equipment that move sections of pipe and/or lower pipe into the trench pose a risk for induction or direct contact due to the height of the equipment. In all instances where construction will take place under or near existing overhead power lines, the construction crews as a standard practice will install signs throughout the area to warn construction personnel of the presence of the power lines and the potential hazard of working near them. Spotters will be used to assist operators when working under or near overhead power lines. In addition, all Proposed Project personnel that will operate vehicles near overhead power lines will be trained on the potential dangers and the procedures to ensure safety.

In some areas, blasting may be required where bedrock is encountered near the surface and where conventional trenching techniques are not feasible or practical. If blasting is required, it will be completed by a licensed blasting contractor in accordance with all applicable permit requirements.

[14] Topsoil is considered the uppermost soil horizon, or A-horizon, and varies in depth depending on the location.

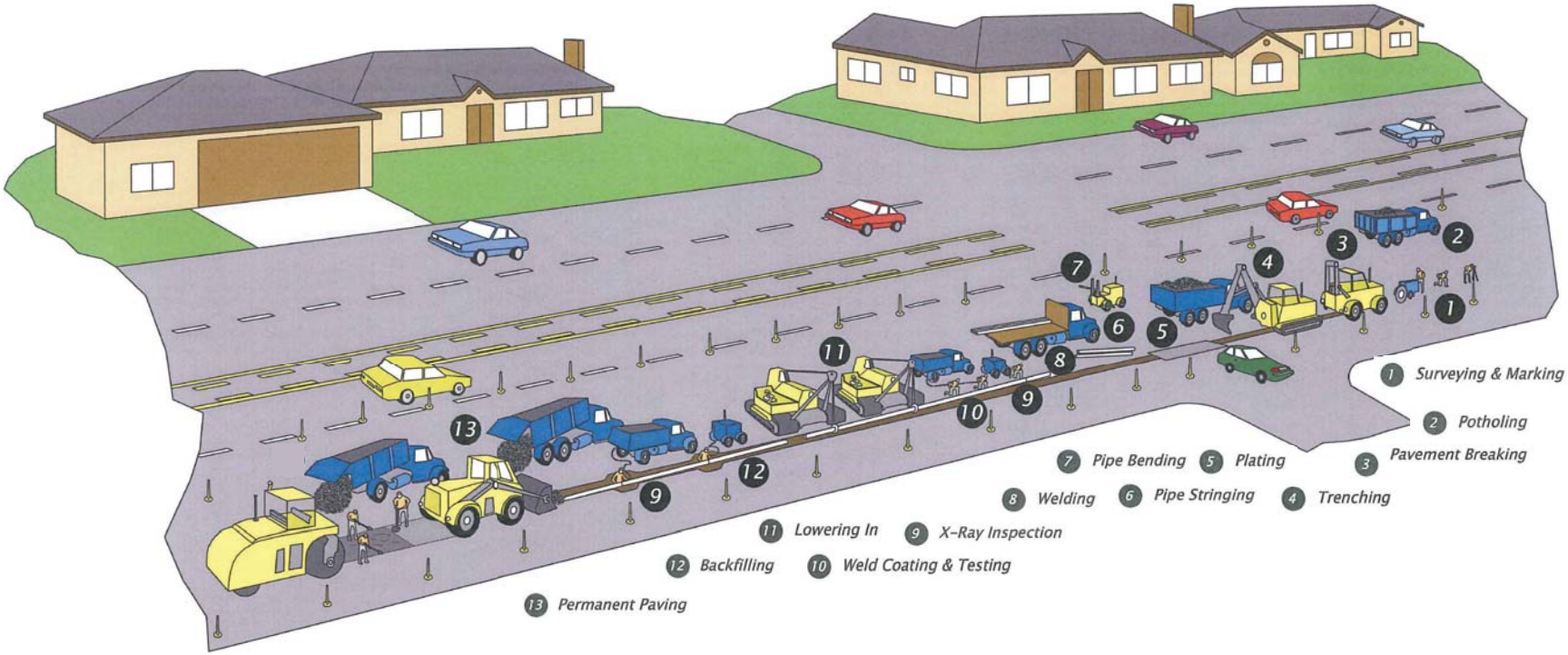

Figure 3-12: Typical Urban Construction Sequence

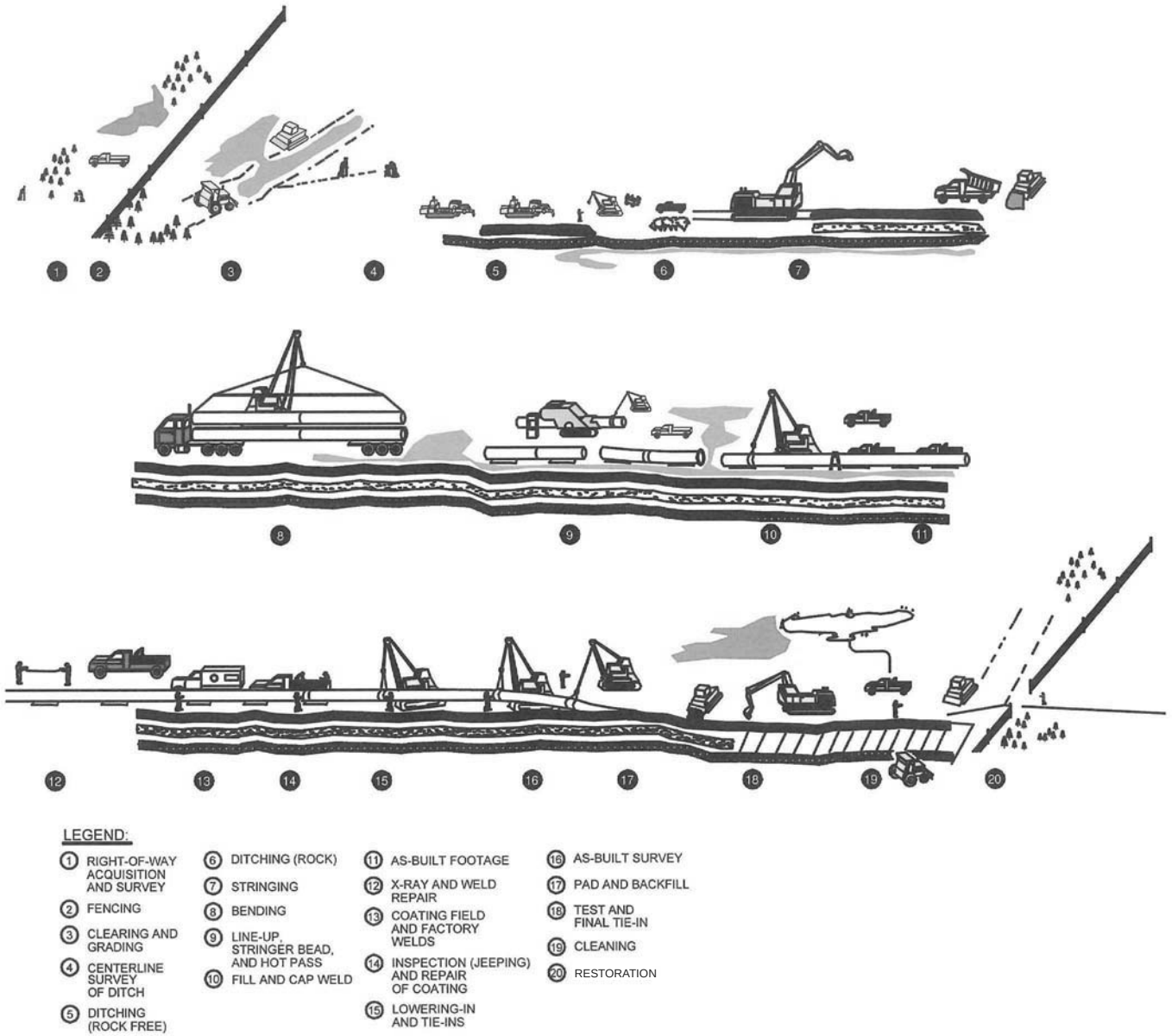

Figure 3-13: Typical Cross-Country Construction Sequence

With the exception of construction within existing paved roadways, excavated soils will typically be preserved and used as backfill at the site of origin. Spoil piles will be placed adjacent to the trench area from which they were excavated, within the temporary construction easement. Materials determined to be unsuitable for backfill will be tested as appropriate and disposed of off site in accordance with all applicable regulations. Where trenching occurs within a paved roadway, the trench spoil will be hauled to an approved disposal facility and will not be used as backfill material. Table 3-6: Estimated Volume of Material Excavated from Trench shows the estimated amount of trench spoil that will be excavated during construction, as well as the amount of material that will be hauled away or imported to backfill the pipe.

Table 3-6: Estimated Volume of Material Excavated from Trench

Route Type	Export Pavement (cubic yards)[15]	Export Spoil (cubic yards)	Total Export (cubic yards)	Import Pavement (cubic yards)	Import Backfill (cubic yards)	Total Import (cubic yards)
Cross-Country[16]	--	40,500	40,500	--	--	--
Urban	34,000	343,700	377,700	34,000	288,100	322,100
Total	34,000	384,200	418,200	34,000	288,100	322,100

Trench dewatering will be required if groundwater infiltrates the pipeline trench to a point where tie-in welds cannot be made. Potential discharge may include using the trench water as a means for dust control and fire prevention, discharging the trench water overland, or using a nearby sewer system with an agreement with the operator. All trench water will be discharged in accordance with applicable permits and in a manner to control the rate of discharge and minimize erosion.

3.6.5 Construction within Roadways

The pipeline and associated facilities will be located within the paved roadway, road shoulder, or ROW adjacent to the road shoulder for approximately 30.2 miles. During construction within and across these roadways, traffic control will be implemented in accordance with an approved TMP and the applicable road encroachment permits. Surface preparation will include removing pavement with concrete saws and/or grinding equipment. The broken debris will be hauled off to an approved facility for recycling or disposal. Excavation will follow, as described in Section 3.6.4 Trenching. The Applicants will use the width allowed by the encroachment permits, the TMP, and the available temporary work area adjacent to the roadway to accommodate the trenching and excavation activities. The maximum width of temporary workspace for construction within roadways will be from the limit of the road shoulder on one side of the road to the limit of the road shoulder on the opposite side of the road, except where additional

[15] Import and export estimates were based on an average trench depth of eight feet, width of six feet, and pavement depth of six inches. The calculations also assume that all material will be hauled off site from urban areas and used as backfill in cross-country areas.

[16] No import or export of pavement and backfill is necessary for cross-country trench locations.

temporary workspace has been identified. Table 3-6: Estimated Volume of Material Excavated from Trench provides the estimated amount of excavated material that will require hauling and the approximate cubic yards of fill material that will need to be imported to backfill the trench.

3.6.6 Residential Construction

The Proposed Project will be located in residential areas. When working within 50 feet of a residence, the following procedures will be implemented:

- fence the edge of the construction work area for a distance of up to 100 feet on either side of the residence;
- avoid removal of mature trees and landscaping within the construction work area unless necessary for safe operation of construction equipment, or as specified in landowner agreements; and
- restore all lawn areas and landscaping immediately following cleanup operations, or as specified in landowner agreements.

If temporary lane or road closures are required in residential areas, flaggers and markers will be used to safely direct traffic. Steel plates will be used to maintain driveway access when trenching across driveways. In addition, all traffic control requirements stipulated in encroachment permits and the TMP will be implemented. Typical residential construction that involves temporary lane closures and temporary road closures is provided in Figure 3-14: Typical Residential Construction – Temporary Lane Closure and Figure 3-15: Typical Residential Construction – Temporary Road Closure.

3.6.7 Horizontal Directional Drilling

HDD is a specialized boring technique that will be used to install the pipe beneath I-15, the San Luis Rey River, and Lake Hodges. HDD involves drilling along a horizontal arc that will pass beneath the resource or infrastructure to be avoided. The HDD technology uses a hydraulically powered horizontal drilling rig supported by a drilling mud tank and a power unit for the hydraulic pumps and mud pumps. A variable-angle drilling unit will initially be adjusted to the proper design angle for the particular drill. The first step will be to drill a fluid-filled pilot bore.

The first and smallest of the cutting heads will begin the pilot hole at the surveyed entry point in the entry pit. The first section of the drill stem has an articulating joint near the drill-cutting head that the HDD operator can control. Successive drill stem sections will be added as the drill head bores under the crossing. The drill head will then be articulated slightly by the operator to follow a designated path under the crossing and to climb upward toward the exit point. Once the pilot hole is completed, a succession of larger cutting heads and reamers will be pulled and pushed through the bore hole until it is the appropriate size for the 36-inch-diameter pipeline.

In general, the work area required at the entry site will be approximately 400 feet by 200 feet, while the exit site will require a work area of varying lengths to string and weld the pullback pipe. Typically, the exit site will be approximately 200 feet by 100 feet, plus an additional 50 feet wide by the length of the HDD for the pullback. This temporary workspace may occur

Figure 3-14: Typical Residential Construction – Temporary Lane Closure

Figure 3-15: Typical Residential Construction – Temporary Road Closure

within the pipeline ROW or ROW acquired specifically to string and weld the pullback pipe, depending on the alignment. HDD work areas are depicted in Attachment 3-A: Detailed Route Maps. A typical HDD is shown in Figure 3-16: Typical Horizontal Directional Drill.

Lubrication containing water, bentonite clay, and additives—referred to as "drilling mud"—will be used to aid the drilling, coat the walls of the bore hole, and maintain the opening. A total of approximately 1.2 million gallons of water will be required for the drilling mud at the HDDs. During the bore, drilling fluid will be pumped under high pressure through the drill stem to rotate the cutting head and return the soil cuttings to a pit at the surface entry point. No additives that are considered hazardous, according to federal and state laws, will be used during the HDD process. The drilling mud will be received in a pit measuring approximately 15 feet by 40 feet.

The drilling mud that is returned back through the drill hole will be pumped from the entry and exit pits to a processing/shaker unit where the soil cuttings are removed, allowing the drilling mud to be reused. The soil cuttings will be dried onsite, then hauled off to an appropriate disposal facility. It is anticipated that the majority of the drilling mud will be hauled off site after construction for potential reuse where feasible. Where it cannot be reused, excess drilling mud will be disposed of at an appropriate waste facility.

During the HDD process, pipe sections to be pulled through the crossing will be strung on pipe supports down the ROW or within additional temporary workspace areas. The pipe sections will be welded together and non-destructively tested by X-ray, and a protective epoxy coating will be applied to the joints. A hydrostatic pre-test[17] of the pipe section will then be performed to ensure integrity prior to pulling. Once the drill hole reaches the correct diameter, a pulling head will be welded on the end of the pipeline section, and the pipe will be pulled through the drill hole until it surfaces on the other side. Sidebooms or excavators with slings or roller cradles will support the pipe as it is slowly pulled through the drill hole. The completed drilled crossing will then be connected to the new pipeline, and the entry and exit pits will be backfilled.

As part of the drilling design process, geotechnical surveys of subsurface conditions will be conducted to determine the geologic strata surrounding the HDD path to help ensure the pipe is being installed into a geotechnically sound environment. Despite these precautions, infrequently, the geologic strata above the bore may be weaker than anticipated and/or unconsolidated. As the HDD passes under these locations, the high pressure of the drilling mud may result in a fracture of these strata, allowing drilling mud to rise to the surface. This situation is termed a "frac-out" and is usually resolved by reducing the mud system pressure or by increasing the mud viscosity. If a frac-out occurs, the boring operation will be assessed to determine whether the bentonite needs to be contained. If the frac-out occurs in a sensitive resource area (e.g., a waterbody), drilling operations will be immediately halted and a Proposed Project-specific frac-out contingency plan[18] will be implemented to contain and remove the drilling mud.

[17] The pipe used for an HDD section is typically pre-tested aboveground to confirm its integrity before the pipe is pulled through the annulus. The pipe is tested again during hydrostatic test of the entire line, but the pre-test minimizes the potential for a hydrostatic test failure in an HDD section, where pipe removal could be costly.

[18] It is anticipated that a frac-out contingency plan will be prepared prior to construction and in coordination with the U.S. Army Corps of Engineers (USACE) and in accordance with Section 404 of the Clean Water Act.

3.6.8 Horizontal Boring

Horizontal boring is a technique that can be used to install the pipeline beneath waterbodies or road crossings without disturbing the surface of the area being crossed. Horizontal bores will be completed using either the jack-and-bore or slick bore method. To complete the crossing, horizontal bores require entry pits measuring approximately 15 feet by 40 feet and receiving pits measuring approximately 10 feet by 15 feet. Typically, bore pits are approximately 10 feet deep,[19] and the bottom of the pit is stabilized with gravel prior to lowering in the boring machine. If groundwater is encountered, it is pumped into a temporary holding tank (e.g., a Baker tank) for analysis and treatment, as necessary, prior to being discharged in accordance with federal, state, and local regulations. Approximately four horizontal bores are anticipated; however, the actual number and location of bores will depend on the final design and permit restrictions that could dictate the construction methodology at the time of construction. Typical horizontal bores under a channel and a road are shown in Figure 3-17: Typical Horizontal Bore – Channel and Figure 3-18: Typical Horizontal Bore – Road, respectively.

3.6.9 Wetland and Waterbody Crossing Procedures

The majority of the Proposed Project will be located within existing roadways where wetland crossing techniques will not be required. However, in cross-country areas—primarily in the Lake Hodges area and on MCAS Miramar—wetland crossings will be required. A list of wetlands that are located within or adjacent to the Proposed Project ROW can be found in Attachment C: Preliminary Wetlands and Waters Assessment within Attachment 4.4-A: Biological Resources Technical Report. Construction within wetlands will be conducted in a manner that minimizes impacts to wetland vegetation and soils. Vehicle and equipment travel through wetlands will be limited to that needed to conduct the wetland crossing. Truck mats, timber mats, road plates, or other means will be used to prevent rutting within the wetland. If the wetland is dry and there is no potential for rutting, vehicles and equipment will use a designated travel lane to cross. No grading or grubbing will occur within wetlands. If clearing is required, vegetation will be cut at ground level, leaving existing root systems in place. The top one foot of topsoil (or less if the topsoil depth is under one foot) will be stripped and salvaged from the trenchline only and stored adjacent to the trench. Trench spoil will be windrowed on undisturbed topsoil within the ROW and kept separate from the salvaged topsoil windrow. In addition, sediment control structures will be installed at the upland/wetland interface to prevent upland soil transport into the wetland. Once the trench has been excavated, the pipe will be lowered in and backfilled, and restoration will occur in a similar manner to that described in Section 3.6.11 Lowering-In, Backfill, and Compaction, Section 3.6.18 Cleanup and Restoration, and in accordance with applicable permits.

The Proposed Project will cross numerous dry drainages and creeks that intersect the Proposed Project alignment. A list of waterbodies that cross or enter the Proposed Project alignment is provided in Attachment C: Preliminary Wetlands and Waters Assessment within Attachment 4.4-A: Biological Resources Technical Report. Many of the dry drainages and creeks that will be crossed by the Proposed Project are culverted beneath roads. As a result, the majority of the

[19] Depending on the location of the bore and the profiles of existing utilities, bore pits can be as deep as 30 feet.

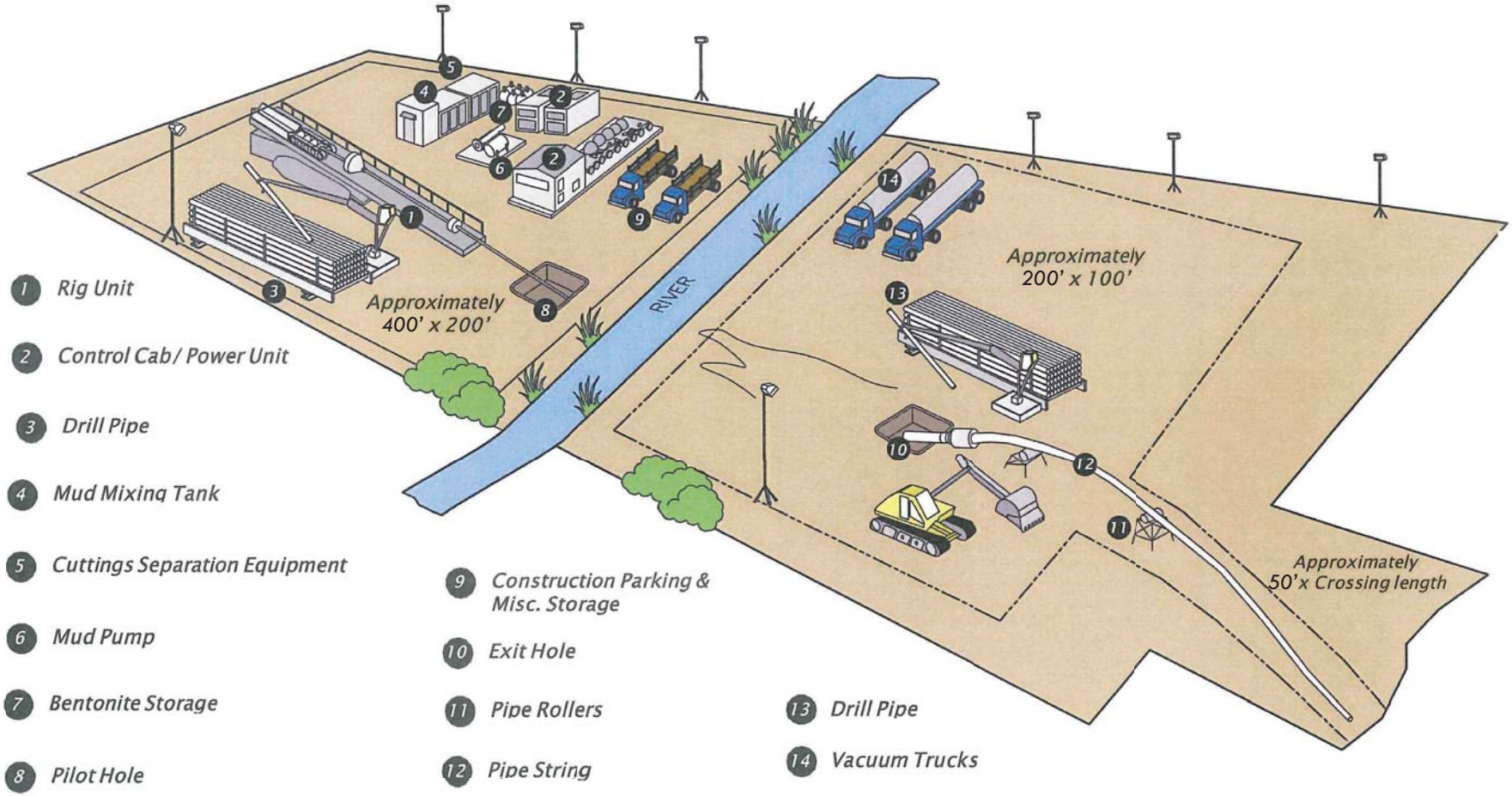

Figure 3-16: Typical Horizontal Directional Drill

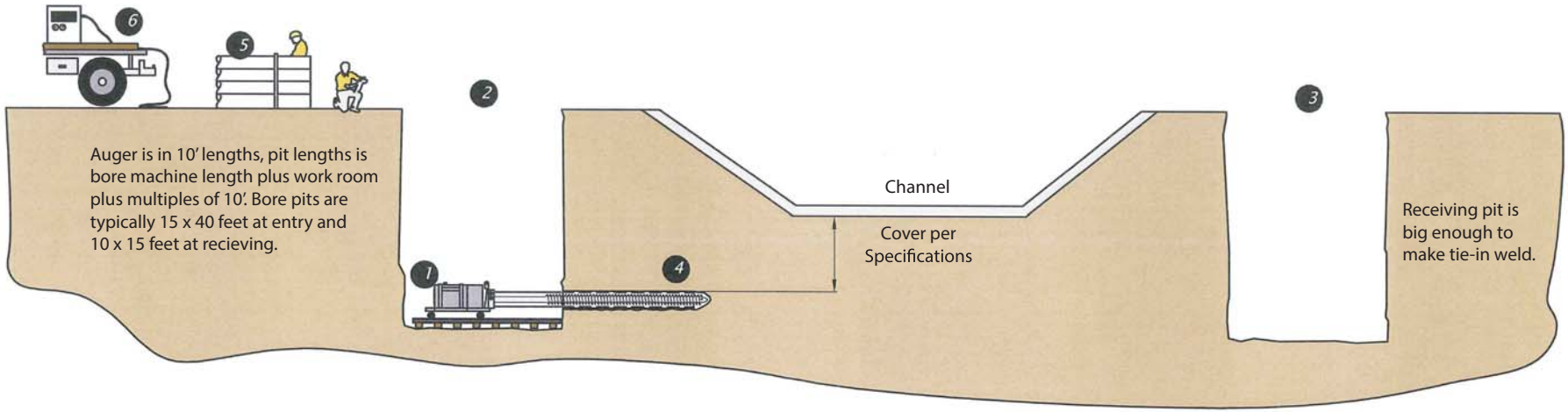

Figure 3-17: Typical Horizontal Bore – Channel

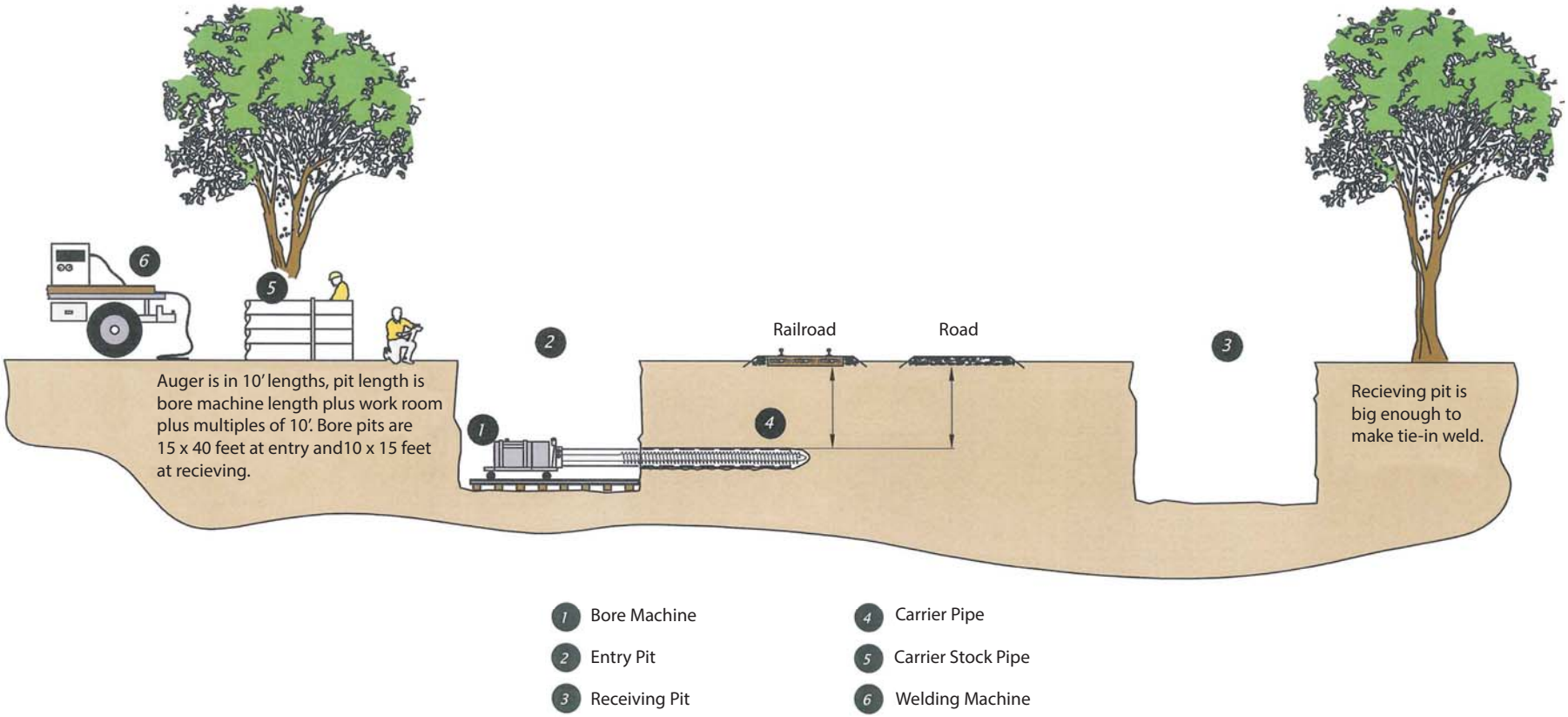

Figure 3-18: Typical Horizontal Bore – Road

crossings will be similar to other utility crossings and will involve installing the pipeline below the feature using horizontal boring techniques, as described in Section 3.6.8 Horizontal Boring and shown in Figure 3-17: Typical Horizontal Bore – Channel.

Drainages and creeks that are not within culverts will be crossed using conventional open-cut crossing techniques, with the exception of the San Luis Rey River and Lake Hodges, which will be crossed using the HDD method. Open-cut crossings will be conducted when the waterbody is dry or at low flow, and in accordance with the applicable USACE and California Department of Fish and Wildlife (CDFW) permits. In addition, open-cut crossings will be scheduled when no rain is forecasted. Prior to any clearing or grading within a waterbody, waterbody buffers will be clearly marked and sediment control measures will be installed to prevent sediment transport into the waterway. Only equipment necessary to construct the crossing will operate within the waterbody. Grading or grubbing within drainages will be limited to the extent possible. If clearing is required, vegetation will be cut at ground level, leaving existing root systems in place. Trench spoil will be stockpiled outside of drainages in an upland area. Once the trench has been excavated, the pipe will be lowered in and backfilled, and restoration will occur in a similar manner to that described in Section 3.6.11 Lowering-In, Backfill, and Compaction, Section 3.6.18 Cleanup and Restoration, and in accordance with all applicable permits.

3.6.10 Pipe Bending, Welding, and Coating

The pipe gang and welding crews will be responsible for welding.[20] Typically, pipe will be double-jointed into approximately 80-foot-long lengths at the coating yard and before transport to the ROW. Once on the ROW, the pipe will be welded into longer sections where topographical and/or existing conditions allow open trenches for prolonged periods. The pipe gang will use sidebooms to pick up each joint of pipe, align it with the adjacent joint, and make the first part (i.e., pass) of the weld. The pipe gang will then move down the line to the next section, repeating the process. The welding crew will follow the pipe gang to complete each weld. All field welding will be performed by qualified welders in accordance with the American Petroleum Institute Standard 1104 (Welding Pipe Lines and Related Facilities) and Title 49, Part 192 of the CFR. In areas that require crossing substructures, individual pipe lengths will vary to accommodate existing field conditions.

All new pipeline welds will be inspected both visually and radiographically (i.e., via X-ray) by certified weld inspectors and will be coated. Although the pipe will be coated prior to delivery to the Proposed Project site, all coated pipe has an uncoated area that is three to six inches from each end to prevent the coating from interfering with the welding process. Once the welds are made, the field joint (i.e., the area around the weld) will be coated with an epoxy coating, such as Fusion Bonded Epoxy or Protal 7200. New pipeline segments will be inspected to locate and repair any faults or voids in the pipeline coating prior to being lowered into the trench.

Most of the pipe will be bent in the field by utilizing track-mounted pipe-bending equipment, which will progress with the pipe installation. However, where bending in the field is not practical or feasible with pipe-bending machines, pipe bends will be fabricated off site. Once the

[20] Welding is the process that joins the various sections of pipe together into one continuous length.

trench is excavated, any bends that are required—to avoid substructures or changes in the alignment—can be determined, measured, and completed for installation.

3.6.11 Lowering-In, Backfill, and Compaction

The welded pipe segments or individual pipe lengths will be lifted and lowered into the trench by sideboom tractors. Cradles with rubber rollers or padded slings will be used so the tractors can lower the pipe without damaging the pipe's protective coating. If rock conditions are encountered during trench excavation, the trench bottom will first be padded with a layer of imported rock-free sand.

In cross-country areas, native material excavated from the pipeline trench will be used to backfill the trench. Imported sand will be used to pad the pipe where rocky soils are present and/or padding material cannot be sieved from the trench spoil. In general, to facilitate restoration the backfill will not be compacted. In areas with high clay content or with potential to subside over the trench line, a slight crown may be left over the pipe to compensate for subsidence. However, this practice is not anticipated and will only be used under limited circumstances.

In urban areas, concrete trucks will backfill the trench with an engineered sand/slurry mixture. The slurry mixture and materials will come from a commercially available, local source. The backfill process in urban areas will be in accordance with standard engineering practices and permit requirements.

3.6.12 Cross-Ties

The Proposed Project will cross-tie with three existing pipelines—Line 1601, Line 1600, and Line 2010. The Line 1601 Cross-Tie will be established near MP 23.4 near the SR-78 crossing in the City of Escondido. The Line 1600 Cross-Tie will be made near MP 29.3, south of Bear Valley Parkway and north of Lake Hodges in the City of Escondido. The Line 2010 Cross-Tie will be established at the pipeline terminus on MCAS Miramar, approximately 0.75 mile north of SR-52.

Interconnections with existing pipelines will be performed using the cold tie-in method. This method involves isolating and depressurizing (blowing down) a section of the existing line so that it is "cold" while the tie-in is made. The length of the depressurized section of pipeline will vary for each cross-tie, depending on valve locations and/or other constraints. Pressure-control fittings and bypass piping may be used, as needed, to accommodate the tie-in. Once depressurized, the existing line will be cut and a tee will be installed and welded into place. A connector pipeline will be constructed from the tee to the cross-tie facility using either conventional trenching or the horizontal boring method. Details regarding construction of the cross-tie facilities are provided in Section 3.6.13 Construction of Aboveground Facilities. Temporarily disturbed areas will be cleaned up and restored, as described in Section 3.6.18 Cleanup and Restoration. Detailed drawings depicting the cross-ties are provided in Figure 3-9: Line 1601 Cross-Tie Site Plan, Figure 3-10: Line 1600 Cross-Tie Site Plan, and Figure 3-11: Line 2010 Cross-Tie Site Plan.

During the tie-ins for each cross-tie, it may be necessary to release natural gas from the existing lines in the vicinity of the tie-in to safely weld the cross-ties. Blowdowns will occur at an existing valve or in between pressure-control fittings on Line 1601, Line 1600, or Line 2010, and

in accordance with Title 49, Part 192 of the CFR. The volume of gas released during a blowdown varies based on the pressure, size, and length of pipeline.

3.6.13 Construction of Aboveground Facilities

MLVs, a pressure-limiting station, cathodic protection units, cross-tie facilities, and other appurtenances will be constructed aboveground within approved work limits, as described in Section 3.4 Project Components. In general, a flat area will be graded to the approximate dimensions of the facility, and the equipment will be installed similarly to the activities described in Section 3.6.10 Pipe Bending, Welding, and Coating and Section 3.6.11 Lowering-In, Backfill, and Compaction. In most cases, aboveground piping will be supported by a concrete foundation. Gravel will be placed on the remaining surface of the facility to facilitate vehicle movement and future operation and maintenance activities. Once the facilities are constructed, masonry block walls measuring six to eight feet in height will be constructed by hand crews around the perimeter of each site. Barbed wire will be installed along the top of the masonry wall. Double-leaf swing gates that measure approximately 20 feet wide will be installed for vehicle access, and four- to six-foot-wide swing gates will be installed for pedestrian access. Aboveground facilities are depicted in the following figures:

- Figure 3-7: Typical Mainline Valve,
- Figure 3-8: Rainbow Pressure-Limiting Station Site Plan,
- Figure 3-9: Line 1601 Cross-Tie Site Plan,
- Figure 3-10: Line 1600 Cross-Tie Site Plan, and
- Figure 3-11: Line 2010 Cross-Tie Site Plan.

3.6.14 Dust Control

Several of the construction activities associated with pipeline construction have the potential to result in the release of fugitive dust under certain circumstances, including grading, trenching, padding, backfill, cleanup, and the use of unpaved access roads. Federal, state, and local regulations govern the amount of allowable fugitive dust, as described in Section 4.3 Air Quality. The typical means of controlling fugitive dust to acceptable levels is to apply water and increase the soil moisture content, because moist soil is less susceptible to detachment and subsequent wind erosion than dry soil. During construction, water trucks will be used to apply water to work areas, trench spoil, and other exposed soil with the potential to create dust, and this will suppress dust to a level that complies with applicable regulations. It is estimated that a total of 6 million gallons of water will be required to control fugitive dust during construction. The actual volume of water used to control dust will be contingent on permit conditions that stipulate water use for dust control and the moisture content of the soils within the Proposed Project area during construction. A more detailed discussion of water usage, including assumptions for calculating volume of water per day, is provided in Section 4.17 Utilities and Service Systems.

In an effort to conserve water, the Applicants will limit the use of water for dust control to the minimum necessary to comply with federal, state, and local regulations. Recycled water that has gone through tertiary treatment and any water gathered from trench dewatering will be used to

the extent feasible and where the applicable regulations permit its use. If recycled water is not available or allowed by regulations, potable water will be obtained from local purveyors.[21]

3.6.15 Hydrostatic Testing

In accordance with U.S. DOT standards, the entire pipeline will undergo hydrostatic testing prior to operation using water obtained from potable or recycled water sources.[22] Section 4.17 Utilities and Service Systems includes additional detail regarding water sources. The hydrostatic test water will be pumped into the test sections, pressurized to design-test pressure, and maintained at that pressure for a minimum of eight hours. An estimated 4.7 million gallons of water will be required to test the entire pipeline. The actual volume of water will be dependent on the number of test sections and the sequence of the test. The pipeline will likely be divided into seven unequal test segments, depending on elevation, valve locations, and work sites. Once the test has been completed on the first segment, the water will be transferred into the next segment of pipe. Once the test has been completed, the water used will be analyzed and treated, as necessary, and discharged or disposed of in accordance with applicable federal, state, and/or local requirements. All hydrostatic testing water will be discharged in a manner to minimize erosion.

3.6.16 Pigging

Pipeline pigs are devices that are inserted into and travel throughout the length of a pipeline driven by a product flow. There are two types of pigs that will be used on this pipeline—smart pigs and utility pigs. Utility pigs are used to perform functions, such as cleaning or dewatering the pipeline. Smart pigs (also called in-line inspection tools) provide information on the condition of the line, as well as the extent and location of any problems. After the pipeline has been hydrostatically tested and dewatered, the contractor will run several utility pigs of various types to remove as much water as possible and any remaining small debris from within the pipeline. Debris is expected to be minimal; any remaining residue will be removed from the pipe during this procedure. All residual water or material will be collected in a tank and disposed of in accordance with state and local dewatering requirements.

3.6.17 Erosion and Sediment Control and Pollution Prevention during Construction

The Applicants will implement best management practices (BMPs) for erosion and sediment control in accordance with SDG&E's Water Quality Construction BMPs Manual and a Storm Water Pollution Prevention Plan (SWPPP) that will be prepared prior to construction in both urban and cross-country areas. In urban areas, the potential for erosion and subsequent sedimentation is low because the majority of work will occur on pavement and an exposed trench generally has low potential for runoff. In the cross-country areas, approximately 73 acres will be disturbed during construction that will expose soil and increase the potential for erosion and subsequent sedimentation. The terrain is generally undulating with slight to moderate slopes. Temporary erosion and sediment control devices will be installed, as necessary, to

[21] The Applicants are taking various actions to facilitate the use of recycled water instead of potable water on construction projects, where feasible. The feasibility of recycled water usage on construction projects depends on factors such as the availability of adequate recycled water supply and regulatory restrictions on the use and disposal of recycled water (e.g., limits on the use of recycled water for certain construction techniques or the discharge of recycled water).

[22] See previous footnote.

minimize off-ROW sediment transport during construction and to protect sensitive resources. During cleanup and restoration, permanent erosion control measures, including slope stabilization and revegetation, will be implemented to provide long-term stabilization of the ROW. All construction debris will be removed from the ROW following the completion of construction, as described in Section 3.6.18 Cleanup and Restoration.

3.6.18 Cleanup and Restoration

For trench areas along roadways, restoration activities will generally commence within a few days of trench backfilling. All construction material and debris will be removed and disposed of at appropriate landfills. Concrete, asphalt, and other construction materials will be recycled to the extent feasible. Within public roads, restoration of the paved surface will be completed in a timeframe and manner required by the encroachment permit and/or the approved TMP. In upland areas, the ROW will be regraded to its approximate pre-construction contours and restored to pre-construction conditions, as specified by the property owner and in compliance with all relevant permits. Topsoil segregated during the grading phase will be returned to its original location once the final grade has been established.

All staging areas and temporary extra workspaces will be recontoured to pre-construction conditions, decompacted if necessary, and reseeded in accordance with the landowners' requests and applicable permits. Additional erosion and sediment control structures will be installed in accordance with the SWPPP to stabilize the ROW until vegetation becomes established. All paving repairs will be made in accordance with franchise agreements, the California Department of Transportation (Caltrans), and city and/or county permits.

As a final step, the route within unpaved portions of the roadway shoulder or private ROW will be marked with approximately five-foot-high line markers placed in accordance with U.S. DOT standards. These line markers will function as a safety measure and will be located at intervals ranging from 500 to 1,000 feet at all angle points, road crossings, and drain and canal crossings that are not within the roadway, per Title 49, Part 192.614 of the CFR. Signs will be offset from the roadways to avoid interfering with traffic.

3.6.19 Night Work

There are several construction scenarios that may dictate night work, including, but not limited to, the following:

- working during non-peak hours to avoid traffic impacts or disruption to businesses;
- tie-ins and/or other welding activities that cannot stop once they are started;
- HDD, which typically operates continuously or at a minimum of 12 hours per day; and
- hydrostatic testing.

Any night work will require lighting plans to comply with Occupational Safety and Health Administration standards. Night work will be limited to the minimum amount necessary; however, it may be necessary to comply with local requirements to work during non-peak hours. Construction activities will be planned to avoid tie-ins during evening hours to the extent possible; however, it is anticipated that tie-ins will extend beyond typical working hours on occasion. The Applicants will coordinate with local jurisdictions for all planned and unavoidable night work.

3.6.20 Construction Workforce and Equipment

The workforce size will depend on the contractor and how many crews are assigned during construction at any given time. It is expected that 125 to 150 construction personnel per construction segment will work daily, with a peak of approximately 600 workers. In general, at least one crew will focus on the installation of the pipeline at major road and drainage crossings; one crew will be dedicated to HDD; and a main crew will focus on conventional trenching and pipe installation. Attachment 3-B: Typical Construction Equipment provides a list of equipment, as well as the anticipated quantity and use for all Proposed Project-related construction.

3.7 CONSTRUCTION SCHEDULE AND PROPOSED PROJECT COST

Construction is scheduled to begin in the first quarter of 2018 and is expected to take 12 to 18 months to complete.[23] Construction crews will work 10 to 12 hours per day and up to six days per week, typically from 6:00 a.m. to 7:00 p.m. or as dictated by each city or county ordinance and/or encroachment permit requirement. HDD, horizontal boring, and X-ray activities will require extended operating hours. Additionally, during hydrostatic testing and final tie-ins, work hours may extend up to 24 hours per day during any day of the week to the extent permitted. However, for a majority of the route, encroachment permits from state and local jurisdictions will dictate the construction hours. It is anticipated that the encroachment permits will include specific hours of operation and potentially night work requirements to reduce traffic impacts. All applicable permits and landowner authorizations will be obtained prior to commencing construction.

The estimated cost to construct the Proposed Project is provided in Table 3-7: Estimated Construction Costs.

3.8 OPERATION AND MAINTENANCE

The pipeline will be designed to operate at a maximum of 800 psi. The proposed pipeline and associated aboveground facilities will be operated and maintained in accordance with Title 49, Part 192 of the CFR.

In accordance with the Applicants' operation and maintenance procedures, the Applicants' existing staff will operate and maintain the pipeline; perform routine maintenance of the pipeline, valves, and pressure-limiting and metering equipment; and respond to emergency situations. These operation and maintenance procedures—including emergency planning, on-call response, and incident reporting—provide for prompt and effective responses to significant, irregular conditions detected along the pipeline. Typical testing and inspection procedures conducted by the Applicants, including the periodical pigging of the line, will be in compliance with federal and state regulations. Table 3-8: Maintenance Activities provides a summary of maintenance activities and their anticipated frequency. Existing personnel will conduct these routine operation and maintenance activities in the same manner as the activities are currently conducted for existing pipelines in the vicinity.

[23] The construction start date is based on receiving a Certificate of Public Convenience and Necessity (CPCN) from the CPUC by 2017 and issuance of other required permits by late 2017 or early 2018.

Table 3-7: Estimated Construction Costs

Component	Estimated Cost[24, 25, 26]
Materials	$90,293,711
Construction	$246,446,192
Construction Oversight	$8,021,298
Engineering, Design, and Project Management	$6,127,678
SCADA	$1,520,495
Surveying	$2,578,731
ROW Acquisition and Labor	$6,027,638
Environmental Review and Permits	$26,480,663
Preliminary Engineering and Design	$1,365,000
Insurance	$11,261,250
Public Outreach and Education	$3,480,000
Outside Legal Counsel	$5,000,000
Southern California Gas Company Labor	$18,161,316
Escalators	$51,574,660
Loaders	$54,031,631
Property Tax	$6,188,078
Allowance for Funds Used During Construction	$57,078,443
TOTAL	**$595,636,784**

[24] All costs are approximate and based on the Association for the Advancement of Cost Engineering (AACE) best practices. The estimate is a Class 3 estimate as applied for the Building and General Construction Industries, which is most relevant to pipeline construction, and is defined as having a minus 15 percent to plus 20 percent of the estimated cost. Final costs will be determined upon approved final design and contracting costs.

[25] AACE International Recommended Practice, No. 56R-08, Cost Estimate Classification System – As Applied for the Building and General Construction Industries, TCM Framework: 7.3 – Cost Estimating and Budgeting, Rev. December 5, 2012.

[26] Proposed Project costs including cost contingencies are predicated on the in-service date, which is currently planned for the fourth quarter of 2020.

Table 3-8: Maintenance Activities

Description	Minimum Frequency
Inspection of all valves	Annually
Inspection of pressure-limiting equipment	Annually
Inspections of pneumatic and electronic autoclosure equipment associated with the MLVs	Twice per year
Inspections of electronic equipment not associated with the MLVs	Annually
Pipeline patrol and leak surveys of the entire line	Twice per year
Patrols of the highway and railroad crossings	Four times per year
Patrol for the class location survey	Annually
Cathodic protection surveys	Annually
Readings taken from rectifiers providing cathodic protection	Six times per year
Inspections of above-ground facilities for atmospheric corrosion	Once every three years
Pigging or in-line inspection	Once every seven years
Exposing various portions of the pipeline to verify pigging results	Once every seven years
Providing locate-and-mark services (i.e., DigAlert or 8-1-1)	Varies based on requests by third parties
Providing surveillance of entities excavating over the pipeline	Varies (12 times per year)

3.9 ANTICIPATED PERMITS AND APPROVALS

Under California law, the CPUC is the lead state agency for the Proposed Project under the California Environmental Quality Act (CEQA). The Applicants are required to comply with G.O. 112-E in constructing a natural gas transmission pipeline. The Applicants are choosing to seek a CPCN from the CPUC for the Proposed Project. In addition, because the Proposed Project route includes land under the jurisdiction of the Department of the Navy/U.S. Marine Corps, federal authorizations will be required.

It is anticipated that the Department of the Navy, MCAS Miramar, will serve as the lead federal agency for the Proposed Project under the National Environmental Policy Act (NEPA) because the Proposed Project will require a new easement for ROWs through MCAS Miramar. If the Department of the Navy determines that the authorization for the construction and operation of the Proposed Project "may effect" species listed under the federal Endangered Species Act, the lead federal agency will be expected to engage in Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) regarding the effects to listed species. In addition, it is anticipated that the Department of the Navy will also conduct Section 106 consultation under the National Historic Preservation Act of 1966 for the protection of historic properties that are included in the National Register of Historic Places (NRHP) or that meet the criteria for the NRHP. Finally, in addition to the CPCN and the authorization for ROWs on MCAS Miramar, the Applicants will

obtain all required permits for the Proposed Project from federal, state, and local agencies. Table 3-9: Anticipated Permits and Approvals lists the potential permits and approvals that may be required for Proposed Project construction.

3.10 PROJECT DESIGN FEATURES AND ORDINARY CONSTRUCTION/OPERATING RESTRICTIONS

The Applicants routinely implements Project Design Features and Ordinary Construction/Operating Restrictions for all construction, operation, and maintenance activities undertaken in both urban and natural communities. The Project Design Features and Ordinary Construction/Operating Restrictions are derived from industry-accepted BMPs and SDG&E's Subregional Natural Community Conservation Plan (NCCP) "protocols" and are included in construction contracts for implementation. SDG&E established its NCCP in 1995, when it entered into an agreement with the USFWS and the California Department of Fish and Game (CDFG).[27] The Subregional NCCP prescribes "protocols" (i.e., various protection, mitigation, and conservation measures) that SDG&E must implement when utilizing the plan. The Subregional NCCP identifies 61 protocols that SDG&E routinely implements with every project to avoid and/or minimize impacts to sensitive areas.

Though the Subregional NCCP will not be used for the Proposed Project to comply with the federal and state endangered species acts during construction, many of the protocols will be implemented to avoid and/or minimize potential impacts to biological resources because they have been evaluated on many projects and have been proven to effectively reduce impacts, particularly for resources in San Diego County. In addition to the NCCP protocols, SDG&E will implement Project Design Features and Ordinary Construction/Operating Restrictions, as well as project-specific APMs. The Project Design Features and Ordinary Construction/Operating Restrictions are marked as "Project Design Features" in Table 3-10: Applicants-Proposed Measures, while measures that are specific to the Proposed Project are marked as "Proposed Project Specific Measure."

3.11 APPLICANTS-PROPOSED MEASURES

As part of the Proposed Project, the Applicants plan to incorporate the APMs included in Table 3-10: Applicants-Proposed Measures into the Proposed Project design to avoid or minimize potential impacts to sensitive resources. The Applicants will conduct the design, construction, operation, and maintenance of the Proposed Project in accordance with the APMs. All Proposed Project-related activities are subject to the APMs, which are ultimately authorized by the CPUC. The various resource chapters detail how and when the APMs will be applied to avoid or minimize impacts to a less-than-significant level.

[27] The CDFG became the CDFW in 2013.

Table 3-9: Anticipated Permits and Approvals

Agency	Permit/Consultation/ Approval	Jurisdiction/Purpose	Anticipated Submittal Date	Anticipated Approval Date[28]	Notes/Assumptions
Federal Agencies					
Department of the Navy, MCAS Miramar	ROW Grant	Authorization for pipeline facilities in and across MCAS Miramar-managed land	April 2015	November 2017	The Tier 1 Application was submitted in April 2015.
	NEPA Compliance	Issuance of a federal permit	September 2015	October 2017	NEPA compliance is anticipated to follow the same timeline as CEQA compliance.
USACE	Clean Water Act (CWA) Section 404 Nationwide	Fill of waters of the U.S.	October 2017	January 2018	Permits are generally issued 45 days from submittal of a complete application; however, Section 401 must be certified first, and Section 7, Section 106, and CEQA must be completed.
USFWS	Endangered Species Act Section 7 Consultation	Activities that may affect federally listed species or their habitats	October 2016	April 2017	Consultation can take 135 days to one year from submittal of the consultation request to the Lead Agency.
Advisory Council on Historic Preservation	National Historic Preservation Act Section 106 Review	Activities on federal land (i.e., MCAS Miramar) that may affect cultural or historic resources	January 2016	January 2017	There is no regulatory timeline for Section 106 compliance; however, a minimum of one year is anticipated.

[28] Anticipated approval dates are based on receiving a CPCN from the CPUC by the fourth quarter of 2017.

Agency	Permit/Consultation/ Approval	Jurisdiction/Purpose	Anticipated Submittal Date	Anticipated Approval Date[28]	Notes/Assumptions
State Agencies					
CPUC	CPCN	Construction of a new, intrastate, 36-inch-diameter natural gas pipeline	September 2015	November 2017	Issuance of a CPCN (including CEQA review) typically ranges from 1 year to 18 months following the submittal of a complete application.
	CEQA Compliance	Issuance of a discretionary permit by a state agency	September 2015	October 2017	CEQA review typically ranges from one year to 18 months following the submittal of a complete application.
State Water Resources Control Board (SWRCB)	National Pollutant Discharge Elimination System – Construction Stormwater Permit	Storm water discharges associated with construction activities disturbing one or more acre of land	January 2018	January 2018	Permits are generally issued 10 days following the submittal of the complete application.
SWRCB	Waste Discharge Requirements	Discharge of trench water or hydrostatic test water that may affect a water of the State	November 2018	January 2019	Submittal of a Notice of Intent is required 60 days prior to discharge.
CDFW	California Fish and Game Code Section 1600 Streambed Alteration Agreement	Activities that will disturb the bed or bank of a jurisdictional waterbody	August 2017	November 2017	Permits are generally issued 90 days after the submittal of a complete application.
	California Endangered Species Act Section 2081 Incidental Take Permit	Activities that may affect state-listed species	November 2016	November 2017	Permits are generally issued 90 to 120 days after the submittal of the complete application, but can take up to one year.
Regional Water Quality Control Board	CWA Section 401 Water Quality Certification	Activities authorized by federal agencies that may affect state water quality	September 2017	January 2018	Permits are generally issued 132 days following the submittal of the complete application.

Agency	Permit/Consultation/ Approval	Jurisdiction/Purpose	Anticipated Submittal Date	Anticipated Approval Date[28]	Notes/Assumptions
State Historic Preservation Officer (SHPO)	SHPO Consultation	Activities that may affect cultural or historic resources	January 2016	January 2017	The consultation timeline assumes there will be a potential effect to historic properties and a consultation period of at least one year.
Caltrans	Encroachment Permit	Construction of facilities within, under, or over state highway ROWs	October 2017	January 2018	Permits are generally issued 60 calendar days after the submittal of a complete application and in compliance with all other statutory requirements, including CEQA.
Local Agencies					
County of San Diego	Encroachment Permit[29]	Construction of facilities within, under, or over county road ROWs	October 2017	January 2018	--
City of San Diego	Encroachment Permit	Construction of facilities within, under, or over city road ROWs	October 2017	January 2018	--
City of Poway	Encroachment Permit	Construction of facilities within, under, or over city road ROWs	October 2017	January 2018	--
City of Escondido	Encroachment Permit	Construction of facilities within, under, or over city road ROWs	October 2017	January 2018	--

[29] The issuance of an encroachment permit is anticipated to require a Traffic Control Plan and a TMP.

Table 3-10: Applicants-Proposed Measures

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
Aesthetics			
APM-AES-01	In order to reduce potential visual contrast and to integrate the Line 1600 Cross-Tie enclosure's appearance with the surrounding landscape setting, the Applicants will design and implement landscaping or a decorative treatment for the block wall enclosure, such as a stone facade that is coordinated with the design of the nearby interpretive signage structures, in consultation with the San Dieguito River Valley Regional Open Space Park Joint Powers Authority.		●
APM-AES-02	If nighttime construction is required, the Applicants will light areas only as required for safety and in accordance with Occupational Health and Safety Administration standards. All nighttime lighting will be shielded or otherwise positioned to minimize potential light trespass from the lighted work area and to reduce potential impacts to nighttime visibility.	●	
Agriculture and Forestry Resources			
APM-AG-01	The Applicants will salvage topsoil to the actual depth, but no more than 12 inches, where temporary ground disturbance will occur to Important Farmland or land that is currently used for agricultural purposes other than grazing. Segregated topsoil and subsoil will be maintained and kept separated throughout all construction activities. If the agricultural area is only used for minor temporary staging or limited construction activities, the Applicants' Environmental Inspector will determine if working on the topsoil will result in fewer impacts to the soil structure and function than stripping the topsoil. If work occurs on the topsoil, construction activities will be limited to avoid rutting (i.e., activities that are found to result in rutting will be halted). If crushed stone or gravel will be used for equipment access in agricultural areas, the topsoil will first be stripped where feasible, and synthetic fabric will be applied over the subsoil prior to spreading the stone or gravel to facilitate removal. Any imported gravel, fill, or soil will be verified to be free of noxious weeds or soil pests prior to their application to construction sites within agricultural areas. Following		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	construction within agricultural areas, excess stone/gravel and synthetic fabric will be removed prior to topsoil replacement. The segregated topsoil will be replaced immediately following the completion of construction activities in the area. In addition, excess rock will be removed from the topsoil and disturbed areas will be restored to pre-construction conditions following construction.		
APM-AG-02	The Applicants will plow or rip the soil with a paraplow or other deep tillage equipment, where feasible, if construction activities cause severe soil compaction to land designated as Important Farmland or land that is currently used for agricultural purposes other than grazing. Plowing will be conducted prior to replacing the segregated topsoil in areas with no underground utilities or safety hazards.		●
APM-AG-03	When adjacent pipelines or underground utilities exist in agricultural areas, the pipeline will be installed with at least the same depth of cover as the existing pipelines and utilities, except where the pipeline will be installed within the road or road shoulder. Where no adjacent pipelines or underground utilities exist in agricultural areas, the pipeline will be installed at a minimum depth of 48 inches to avoid conflict with typical tillage activities, except where the pipeline will be installed within the road or road shoulder.		●
APM-AG-04	If construction activities have the potential to interfere with existing agricultural operations, the Applicants will provide notification to applicable property owners at least 30 days prior to initiating the associated construction activities.		●
Air Quality			
APM-AIR-01	Water or approved dust control products will be applied to all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) at a rate that maintains the soil moisture content to control fugitive dust and meet the San Diego County Air Pollution Control District Rule 55 requirements. Water will only be applied to graveled areas if dust is visible.	●	
APM-AIR-02	Open-bodied trucks transporting bulk materials that may become airborne will be completely covered, unless the bulk material is wetted or there is at least two feet of freeboard from the top of the container.	●	

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-AIR-03	The Applicants or their contractor will maintain and operate construction equipment to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues will have their engines turned off after five minutes when not in use. Construction activities will be phased and scheduled to avoid emission peaks, and equipment use will be curtailed during second-stage smog alerts.	●	
APM-AIR-04	Off-road diesel construction equipment with a rating between 100 and 750 horsepower will be required to use engines compliant with United States Environmental Protection Agency Tier 3 non-road engine standards. In the event that Tier 3 equipment is not available for a particular type of equipment at the time of construction, equipment of a lesser tier will be used. Tier 3 equipment can only be substituted for a lesser tier (i.e., Tier 2 or Tier 1) with approval from the Applicants' air quality specialist.		●
APM-AIR-05	Proposed Project-related vehicles will observe a maximum 15 mph speed limit on all unpaved access roads and within work areas, except on city and county roads and state and federal highways, where the posted maximum speed limit will be observed.	●	
Biological Resources			
APM-BIO-01	Biological monitors will be present during vegetation removal and initial ground-disturbing activities within native habitat (i.e., all areas except the disturbed and developed general habitat types). The biological monitors will conduct a pre-construction sweep of the work area prior to vegetation removal or initial ground disturbance and will verify that activities are in compliance with the Proposed Project permits and authorizations. The biological monitors will have the authority to halt work that poses an imminent threat to federally or state-listed species.	●	
APM-BIO-02	Prior to construction, the Applicants will demarcate the boundaries of work limits and resources that will be avoided. The boundaries will be maintained for the duration of construction activities at each location.	●	

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-BIO-03	Prior to construction, the Applicants will prepare and implement a Habitat Restoration Plan for areas temporarily disturbed during construction. The Habitat Restoration Plan will describe, at a minimum, the pre-construction documentation of existing conditions, clearing and grading procedures to be used during construction that will help facilitate restoration, recontouring and seedbed preparation methods, topsoil salvage, seed mix selection and application procedures, the schedule for restoration activities, monitoring periods, success criteria, remedial measures, and reporting procedures to be used.		●
APM-BIO-04	The Applicants will prepare a Noxious and Invasive Weed Management Plan (NIWMP) that is intended to minimize the spread of noxious and invasive weeds during construction. The NIWMP will include but will not be limited to, ensuring that construction vehicles arrive to work sites clean and weed-free prior to entering the right-of-way in cross-country areas, ensuring straw wattles used to contain storm water runoff are weed-free, and documenting the extent of noxious weeds within the construction areas prior to construction. Noxious weeds are defined as species rated as High on the California Invasive Plant Inventory Database, published by the California Integrated Pest Council. Construction within urban/developed areas and intensive agricultural areas would be exempt from the NIWMP requirements.		●
APM-BIO-05	Impacts to oak trees will be avoided and/or minimized to the extent possible during construction of the Proposed Project by temporarily fencing the perimeter of the oak tree dripline. In the event that any native oak trees are required to be removed to construct the Proposed Project, the Applicants will comply with all County of San Diego and local municipality requirements for oak tree preservation and mitigation, including obtaining tree removal and/or vegetation clearing permits. The Applicants will coordinate with each municipality to adequately meet the individual permit conditions, which generally involve tree replacement at one-to-one mitigation ratios. If oak trees are cut down, tree material will be chipped on site and then hauled off to an approved landfill facility, or cut and left on site in order to minimize the risk of spreading golden oak borer.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-BIO-06	During the appropriate phenological (i.e., blooming) periods, pre-construction surveys for federally listed, state-listed, and California Rare Plant Rank 1 and 2 special-status plants will be conducted within one year prior to construction in areas adjacent to or within the construction areas that have potential for special-status plants to occur. The boundaries of these special-status plant occurrences will be mapped with submeter-accurate Global Positioning System units. Prior to construction, the locations of any federally listed, state-listed, and California Rare Plant Rank 1 and 2 special-status plants that the Applicants determine can be avoided will be flagged for avoidance with fencing or flagging. Flag boundaries for special-status plants will be maintained during work at these locations. Where disturbance to these areas cannot be avoided, the Applicants will develop and implement the Habitat Restoration Plan described in APM-BIO-03.		●
APM-BIO-07	Prior to construction, a qualified biologist or other qualified resource specialist will develop an environmental training for all Proposed Project personnel. The training will describe the appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws, regulations, and related permits/authorizations, including appropriate wildlife avoidance; impact minimization procedures; the importance of these resources, and the purpose and necessity of protecting them; and methods for protecting sensitive ecological resources. In addition, the environmental training will familiarize all Proposed Project personnel with special-status species that may occur within the construction areas. The training will include Best Management Practices to reduce the potential for erosion and sedimentation during construction of the Proposed Project. The Applicants, their contractor, and their subcontractor personnel will attend the training prior to starting work on the Proposed Project. Upon completion of the training, each attendee will sign a form stating that he/she participated in the training and understood the material presented.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-BIO-08	In order to protect plant and wildlife, food-related garbage and trash will be removed from the Proposed Project area daily or will be stored in concealed garbage containers. Smoking will only be allowed in cleared areas or enclosed vehicles to reduce the potential for wildfires, and firearms will be prohibited in all Proposed Project areas. Proposed Project personnel will not be allowed to bring pets to any Proposed Project area to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations. No harm, harassment, or collection of plant and wildlife species will be allowed. Feeding of wildlife will be prohibited.	●	
APM-BIO-09	All steep-walled trenches or excavations used during construction will be inspected twice daily (i.e., in the early morning prior to the start of construction activities and in the evenings after construction has stopped for the day) to protect against wildlife entrapment. Additionally, trenches and/or open excavations will be inspected prior to filling to ensure the absence of wildlife. Excavations will be sloped on one end to provide an escape route for wildlife in areas where there is the potential for wildlife entrapment. If wildlife is located in the trench or excavation and cannot escape unimpeded, the biological monitor will be called immediately to remove the animal. If the trapped animal is injured, a recognized wildlife rescue agency (e.g., Project Wildlife) will be employed to remove the animal and address the injury.	●	
APM-BIO-10	Construction night lighting in potential special-status wildlife habitats (generally considered to be any habitat other than urban/developed areas) will be minimized to the extent feasible. Exterior lighting within and adjacent to potential special-status wildlife habitats will utilize the lowest illumination allowed for human safety and will be selectively placed, shielded, and directed away from native vegetation to the maximum extent practicable.	●	
APM-BIO-11	Construction vehicle and equipment speeds will be limited to 15 miles per hour on all unpaved surfaces during the day and 10 miles per hour on all unpaved surfaces at night to prevent mortality of nocturnal special-status wildlife species.	●	

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-BIO-12	If a special-status wildlife species is identified on site during construction, crews will immediately stop work and contact the designated Applicants' representative. Work will not proceed in the immediate area until the animal has traveled off site on its own or has been relocated by a biologist qualified to handle wildlife. If the identified special-status wildlife species is a federally and/or state-listed species, a biologist qualified to handle the special-status wildlife species will relocate the species into appropriate habitat areas out of harm's way and out of the construction right-of-way.	●	
APM-BIO-13	Prior to the final design, a biologist experienced with Stephens' kangaroo rat life history and surveying techniques will conduct surveys for kangaroo rat species in suitable habitat for Stephens' kangaroo rat (e.g., open coastal sage scrub, grasslands, and disturbed areas) within 150 feet on either side of the Proposed Project area. If kangaroo rat species are detected in these survey areas, the Applicants will avoid those habitat areas to the extent feasible. If avoidance of kangaroo rat habitat areas is not feasible, the Applicants—in coordination with the United States Fish and Wildlife Service—will conduct trapping surveys to determine if the kangaroo rat species present is the Stephens' kangaroo rat. If Stephens' kangaroo rat is determined to be present and impacts to its habitat are unavoidable, the Applicants will consult with the United States Fish and Wildlife Service through the Section 7 consultation process to obtain incidental take authorization.		●
APM-BIO-14	The Applicants will avoid and minimize impacts to roosting bats to the extent feasible. Prior to construction, the Applicants will conduct a survey of potential bat roosts located within or immediately adjacent to the right-of-way in areas where the Proposed Project activities (e.g., blasting) have the potential to directly impact active roosts or disrupt bat breeding activities. Potential roost sites will be searched for signs of bat use, such as urine streaking, grease marks and droppings, moth wings, and dead bats. Up to two weeks prior to construction, a qualified biologist will conduct an emergent bat survey within potential roost sites that have signs of bat use. If bats are detected, the Applicants will not remove the roost (e.g., palm trees) until it can be determined that the bats no longer are present. If a maternal roost is		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	identified, no construction will occur within 200 feet of the maternal roost during the pupping season (typically April 1 through August 31).		
APM-BIO-15	A qualified biologist will conduct take avoidance (i.e., pre-construction) surveys for western burrowing owl in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012) prior to construction activities. The Applicants will prepare a survey report in accordance with the requirements of the staff report. If a breeding territory or nest is confirmed, the California Department of Fish and Wildlife will be notified and the Applicants will avoid impacts to burrowing owl to the extent feasible. If unavoidable impacts to western burrowing owl are anticipated, the Applicants will implement mitigation methods as outlined in the staff report and in coordination with the California Department of Fish and Wildlife. These mitigation measures may include avoiding occupied habitat during the breeding season, minimizing impacts to burrowing owls through the use of visual screens or buffer zones, burrow exclusion, and closures conducted in accordance with an artificial burrow or exclusion plan, as outlined in Appendix E of the staff report.		●
APM-BIO-16	A Nesting Bird Management Plan will be prepared to outline procedures for minimizing impacts to nesting birds protected by the Migratory Bird Treaty Act during construction. The plan will address how to avoid direct or indirect impacts to nesting birds through various measures, including: • conducting pre-construction nesting bird surveys during specified breeding times within a certain distance of the Proposed Project impact areas; • establishing avoidance and minimization buffers for active nests based on species-specific noise tolerances; • describing construction activities that can occur within avoidance and minimization buffers; • implementing procedures for reducing buffers as appropriate; and • monitoring protocols to document compliance with the Nesting Bird Management Plan, including daily nesting bird reports, during construction.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	The Nesting Bird Management Plan will be implemented for all potentially affected bird species during the nesting season and during construction of the Proposed Project.		
APM-BIO-17	The Applicants will temporarily fence the perimeter of vernal pools or ponded areas potentially supporting fairy shrimp and will include a five-foot buffer between the fence and the water feature. The fenced boundaries will be maintained in place for the duration of construction at each location. Biological monitors will routinely check these areas during construction to ensure that fencing is in place and that no unauthorized construction activities occur. No construction activities—including any vegetation clearing, grading, or refueling of construction vehicles—will be allowed within the fenced area.		●
Cultural, Tribal, and Paleontological Resources			
APM-CUL-01	Prior to construction, all Applicants, contractor, and subcontractor personnel will receive training regarding the appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws and regulations, including the potential for exposing subsurface cultural resources and paleontological resources and to recognize possible buried resources. This training will include presentation of the procedures to be followed upon discovery or suspected discovery of archaeological materials—including Native American remains and their treatment—and paleontological resources.		●
APM-CUL-02	Prior to the initiation of construction, historic and archaeological resources identified by the record search and field investigation within the area of potential effect will be evaluated to determine if they are eligible for listing on the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), Local Register, or Resource Protection Ordinance. Once the eligibility status is determined for each resource, the Applicants will prepare and implement a formal treatment plan that includes procedures for protection and avoidance, evaluation and treatment, and the curation of any NRHP- or CRHR-eligible cultural materials that cannot be avoided within the area of potential effect.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-CUL-03	A qualified archaeologist and Native American will monitor ground-disturbing activities within 50 feet of known sensitive cultural resource sites. Environmentally sensitive area (ESA) fencing will be placed around the resources within the Proposed Project's area of potential effect that can be avoided by construction unless existing physical barriers preclude the use of ESA fencing. A qualified archaeologist and Native American monitor will monitor all construction activities within 50 feet of ESA fencing. The requirements for archaeological monitoring will be noted on the construction plans. The archaeologist's duties will include monitoring, analysis of the materials, and preparation of a monitoring results report. In the event cultural resources are encountered during ground-disturbing activities, the archaeologist will have the authority to divert or temporarily suspend ground disturbance to allow evaluation of potentially significant cultural resources. The archaeologist will contact the Applicants' Cultural Resources Specialist and Environmental Project Manager at the time of the discovery. The archaeologist, in consultation with the Applicants' Cultural Resource Specialist, will determine the significance of the discovered resources. The Applicants' Cultural Resources Specialist and Environmental Project Manager must concur with the evaluation procedures to be performed before construction activities are allowed to resume. For significant cultural resources, preservation in place will be the preferred manner of mitigating impacts. For resources that cannot be preserved in place, a Research Design and Data Recovery program will be prepared and carried out to mitigate impacts. All newly identified cultural resources will be documented on appropriate California Department of Parks and Recreation forms and submitted to the South Coastal Information Center along with reports generated from the monitoring efforts.		●
APM-CUL-04	Consultation with Native American tribes will be continued through construction of the Proposed Project, pursuant to California Public Resource Code Section 21074. Consultation will identify and assess or mitigate the impact of the Proposed Project to tribal cultural resources and traditional cultural properties or other resources of Native American concern. Native American consultants will be invited to monitor construction activities within culturally sensitive areas and will be given the right to inspect sites where human remains are discovered and to determine the treatment and disposition of the remains. In addition, the Applicants will provide requested		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	information and updates during initiation and construction of the Proposed Project, which may include information regarding further developments in the Proposed Project, copies of site records, survey reports, or other environmental documents.		
APM-CUL-05	In the event human remains are encountered during ground-disturbing activities, all work shall cease in the vicinity of the discovery and the County coroner shall be contacted per the California Public Resource Code. Should the remains be identified as Native American, the Native American Heritage Commission shall be contacted within 48 hours to provide a Most Likely Descendant to determine reburial practices for the remains. All actions related to the treatment of human remains will be implemented in accordance with the California Health and Safety Code Section 7050.5 and PRC Section 5097.98.		●
APM-PALEO-01	A qualified paleontologist will attend the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues. A qualified paleontologist is defined as an individual with a Master of Science or Doctor of Philosophy degree in paleontology or geology who is familiar with paleontological procedures and techniques, who is knowledgeable in the geology and paleontology of San Diego County, and who has worked as a paleontological mitigation project supervisor in San Diego County for at least one year.		●
APM-PALEO-02	A paleontological monitor will be on site on a full-time basis during ground-disturbing activities that occur at least two feet or more below the existing grade within previously undisturbed deposits of high and moderate paleontological potential to inspect exposures for contained fossils. A paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials. The paleontological monitor will work under the direction of a qualified paleontologist.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-PALEO-03	If fossils are discovered, the paleontologist (or paleontological monitor) will recover them. In most cases, this fossil salvage can be completed in a short period of time. However, some fossil specimens (e.g., a complete large mammal skeleton) may require an extended salvage period. In these instances, the paleontologist (or paleontological monitor) has the authority to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Fossil remains collected during monitoring and salvage will be cleaned, repaired, sorted, and cataloged as part of the mitigation program. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be curated as a donation in a scientific institution with permanent paleontological collections such as the San Diego Natural History Museum.		●
APM-PALEO-04	A final summary report outlining the results of the paleontological mitigation program will be prepared following completion of the paleontological monitoring efforts. This report should include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.		●
Geology, Soils, and Seismicity			
APM-GEO-01	Prior to construction, additional geotechnical evaluations will be conducted by a California-licensed geotechnical engineer and California-certified engineering geologist based on the final alignment. The Applicants will consider the recommendations and findings of the final geotechnical evaluations in the final design of all Proposed Project components to ensure that the potential for expansive soils and differential settling is incorporated into the final design and construction techniques. In addition, the Proposed Project will be constructed in accordance with applicable codes, seismic standards, and requirements set forth by state, county, and city agencies.	●	

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-GEO-02	To ensure the stabilization of topsoil during grading and excavation activities, the Applicants will implement its Best Management Practices (BMPs) for water quality construction. These BMPs include erosion and sediment control measures to reduce the loss of topsoil and ensure that topsoil is salvaged during grading. Following the completion of construction activities, the Applicants will further stabilize disturbed soils by seeding and implementing additional measures outlined in the Storm Water Pollution Prevention Plan, which will be prepared for the Proposed Project.	●	
APM-GEO-03	The Applicants will develop site-specific erosion control drawings in areas where cross-country construction occurs on slopes exceeding 33 percent, including between MP 3.3 and MP 3.8. The drawings will show the approximate location of trench plugs, waterbars, and outlets. Trench plugs will consist of sakrete, foam, or functional equivalent and will be spaced at regular intervals. Waterbars will be installed below the trench plugs and extend to the edge of the right-of-way or beyond to a stabilized area that will convey flow away from disturbed areas. In addition, the drawings will include stabilization measures, such as rolled erosion control products and seed, as needed. The spacing of the trench plugs and waterbars, as well as the need for additional stabilization measures, will be confirmed in the field by an erosion control specialist.		●
Hazards and Hazardous Materials			
APM-HAZ-01	The Applicants will propose a Proposed Project-specific Hazardous Materials and Waste Management Program for the construction phase of the Proposed Project to ensure compliance with all applicable federal, state, and local regulations. The Hazardous Materials and Waste Management Program will provide a list of the hazardous materials that will be present on site during construction and will include information regarding their storage, use, transportation, and disposal. The plan will also include a list of spill response materials, the location of these materials at the Proposed Project site during construction, and a list of fire-suppression devices. In addition, the Hazardous Materials and Waste Management Program will outline procedures for the identification and avoidance of contaminated materials, the secondary containment of on-site hazardous materials, spill response measures, and waste minimization during construction. Because potentially contaminated	●	

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	groundwater may be present during excavation activities, the Hazardous Materials and Waste Management Program will include waste-specific procedures for identifying, dewatering, treating, and removing contaminated media encountered during construction activities.		
APM-HAZ-02	A Health and Safety Plan will be prepared and implemented during construction. The Health and Safety Plan will educate construction workers on the identification of hazards associated with the Proposed Project, the safety measures that must be taken to prevent injury, natural gas hazards, and the procedures to ensure that personnel receive the necessary training. Safety hazards and applicable federal and state occupational standards will be identified in conjunction with the development of appropriate response actions, as well as the protocol for accident reporting. The Health and Safety Plan will also identify requirements for temporary fencing around staging areas, storage yards, and excavation areas during construction activities, and will describe methods of limiting public access to hazardous facilities. In addition, information regarding medical kits, safety equipment, and evacuation procedures will be outlined in the Health and Safety Plan. A qualified environmental field representative will be present on site to observe, enforce, and document adherence to the Health and Safety Plan as needed. The Health and Safety Plan will be prepared by the Applicants' construction contractor and will be available immediately prior to construction.	●	
APM-HAZ-03	Prior to construction, all Applicants, contractors, and subcontractor Proposed Project personnel will receive training on the work practices necessary for the effective implementation of best management practices and Applicants-Proposed Measures to comply with applicable hazardous materials-related laws and regulations.	●	
APM-HAZ-04	Based on the regulations described in Section 955.5 of the California Public Utilities Code, the Applicants will notify the schools within 500 feet of proposed construction activities. Notifications will be provided no less than 15 working days prior to initiating construction activities associated with the proposed pipeline. The Applicants will maintain the appropriate records specified in the regulations and provide emergency contact information to applicable facilities.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-HAZ-05	Prior to construction, the Applicants will evaluate the unexploded ordnance risk along the Proposed Project transmission line alignment within Marine Corps Air Station Miramar from near Milepost 43.7 to the southern terminus of the Proposed Project. As part of the evaluation, the Applicants and their contractors will coordinate with Marine Corps Air Station Miramar staff, including the Explosive Ordnance Disposal Unit, to determine procedures for avoidance of unexploded ordnances, as well as the procedures that construction crews must follow in the event of an unexploded ordnance discovery during construction. These procedures may include, but will not be limited to, conducting a surface sweep for evidence of munitions debris prior to initial ground disturbance, monitoring earth-disturbing activities in potential munitions hazards areas, and notifying the appropriate entities in the event of a discovery. The Applicants will include these procedures as part of the Safety and Environmental Training given to all personnel prior to beginning work on the Proposed Project, and will follow these procedures during construction within Marine Corps Air Station Miramar.		●
Hydrology and Water Quality			
APM-HYD-01	Prior to Horizontal Directional Drilling operations at the San Luis Rey River and Lake Hodges crossings, the Applicants will prepare a Frac-out Plan to address procedures for containing an inadvertent release of drilling fluid (frac-out). The plan shall contain specific measures for monitoring frac-outs, containing drilling mud, and notifying agency personnel. The plan shall also discuss spoil stockpile management, hazardous materials storage and spill cleanup, site-specific erosion and sediment control, and housekeeping procedures, as described in the Storm Water Pollution Prevention Plan.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
Noise			
APM-NOI-01	If it is anticipated that construction noise will exceed locally adopted noise limits, the Applicants will meet and confer with the relevant jurisdiction(s). If required by the local ordinance, the Applicants will apply for deviations from the adopted noise standards. Construction activities will occur during the times established by the local ordinances (generally between 7 a.m. and 7 p.m., Monday through Saturday), with the exception of certain activities that require nighttime and weekend construction activities, such as activities that require continuous operation or that must be conducted during off-peak hours per agency requirements. If construction activities are required outside of hours approved by the applicable jurisdiction, the Applicants will meet and confer with the agency and provide a five-day notice to the agency, the California Public Utilities Commission, and sensitive receptors within 300 feet of the proposed construction activity.		●
APM-NOI-02	If blasting is deemed necessary for the construction of project components, the Applicants shall conduct a pre-blast survey and prepare a blasting plan. The blasting plan will be site specific, based on the locations of required blasting and the results of a Proposed Project-specific geotechnical investigation. The blasting plan will include a description of the planned blasting methods, an inventory of receptors potentially affected by the planned blasting, and a schedule for the blasting activities. The blasting plan will include requirements for noticing, as well as measures to minimize noise related to blasting to the extent feasible.	●	
APM-NOI-03	The Applicants will incorporate noise attenuation measures into the final design to the extent feasible to reduce operational noise levels from pressure-limiting equipment and to achieve one-hour average sound levels at or below the existing limits provided in the current applicable noise ordinances for the locations of these facilities.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-NOI-04	The Applicants or their construction contractor will provide advance notice (i.e., no less than two weeks prior to construction) by mail to all identified sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads. The announcement will state specifically where and when construction will occur in the area. If construction is delayed by more than 30 days, an additional notice will be made, either in person or by mail. Notices will provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction). The notice will also advise the recipient on how to inform the Applicants if other specific noise- or vibration-sensitive activities are scheduled at the same time; if necessary, the Applicants may reschedule construction to avoid a conflict. The Applicants will also publish a notice of impending construction in local newspapers, stating when and where construction will occur.	●	
Public Services			
APM-PS-01	No less than 60 days prior to beginning construction, the Applicants will coordinate with schools (or the appropriate school districts) that are located adjacent to roadways, intersections, or parking lot entrances along which the Proposed Project will be constructed. These schools include the following: • Canyon Ridge Christian Prep, • Bear Valley Middle School, • L.R. Green Elementary School, • The Classical Academy, • San Pasqual High School, • RBCPC Preschool, • St. Bartholomew's Preschool, • Pomerado Christian Preschool, • Country Montessori School, • Oak Knoll Montessori, • Abraxas Continuation High School, • Meadowbrook Middle School, • Legacy Montessori School,		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	• Pomerado Elementary School, • St. Michael's School, • Kiddies Korner Daycare and Preschool, • Discovery Isle Child Development Center, • Chabad Hebrew Academy, and • Thurgood Marshall Middle School. The Applicants and the schools or school districts will determine the best time to conduct construction activities near schools that have the potential to be impacted by construction activities in order to avoid major school events and to minimize any disruption to learning. Where feasible, the Applicants will conduct construction activities outside of the scheduled school year during the summer or seasonal breaks, outside of peak drop-off and pick-up hours for the standard school day, at night, or during weekends to reduce potential impacts to local schools.		
Recreation			
APM-REC-01	The Applicants will post signage in parks that are crossed by or adjacent to the Proposed Project no less than four weeks prior to the beginning of construction activities within or adjacent to the park. This signage will notify park users of the impending construction activities; construction impacts (e.g., increased noise and dust); the affected locations; and the estimated duration of temporary park facility closures, which will give park patrons time to plan their use of alternative recreational facilities. Contact information to reach the Proposed Project's public liaison will be provided on the signage, and the public liaison will address any complaints related to dust, noise, odor, and access restrictions. In addition to the signage, park and open space authorities will be directly contacted and provided advance notice of Proposed Project activities no less than four weeks prior to construction.		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
Transportation and Traffic			
APM-TRA-01	Prior to construction, the Applicants will prepare a comprehensive Traffic Management Plan (TMP) for the Proposed Project. The TMP will be prepared in accordance with all applicable requirements of the state, county, and city encroachment permits and applicable county and city plans, ordinances, and policies. The TMP will also address all other factors related to reducing potential construction-induced traffic impacts, which include, but are not limited to, the following: • coordinating with the jurisdictions prior to construction to determine specific traffic handling layouts; • protecting traffic by using flaggers, warning signs, lights, and barricades; • minimizing interference with traffic; • restoring roadway capacity to the extent feasible during hours when construction activities are not occurring, which could include the use of road plates or temporary paving; • cleaning and restoring roadways upon completion of work; • scheduling the timing and duration of work, including the potential for night or weekend work; • minimizing the potential impacts to level of service standards, where possible; • minimizing the potential impacts to emergency vehicle response times and emergency evacuation routes; • minimizing potential impacts to public transit, including coordinating with public transit agencies to modify bus routes during construction, as well as determining construction notification procedures for public transit users;	●	

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	• minimizing potential impacts to non-motorized transit, including bicycle lane closures and detours; • minimizing potential impacts to pedestrian access, including temporary sidewalks and pedestrian crossing closures and detours; • determining the locations where full road closures may be required to ensure there are comparable detour routes available and which driveways in the area of the closures will have continual access during the closures; • determining, prior to construction, any alternative routes or detours that use similar street types to roadways with temporary closures; • limiting the length of open trenches to the length allowed by county and city encroachment permits; • implementing strategies to mitigate for direct and cumulative traffic-related impacts; • implementing strategies for construction phasing and traffic management that minimize the duration of Proposed Project construction; • implementing construction schedules and techniques that minimize roadway closures, including the number of cross streets and side streets that may be blocked or otherwise impacted by construction activities; • implementing construction phasing or techniques to maintain access through intersections where no alternative routes are available; • minimizing heavy truck traffic near schools and residential areas to the minimum necessary to construct the Proposed Project; • considering horizontal boring at intersections of roads that are regionally significant and carry high traffic volumes, including roads designated in applicable general plans as primary arterials, arterials, and major roads; and		

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	• enforcing speed limits of construction vehicles on all roads, including unpaved access roads within Marine Corps Air Station Miramar.		
APM-TRA-02	The Proposed Project will be designed so that the pipeline alignment utilizes existing road shoulders and medians to the maximum extent feasible in order minimize reductions in roadway capacity as a result of construction-related lane closures.		
APM-TRA-03	In order to limit impacts to parking capacity in rural and urban areas of the Proposed Project route, the Applicants will require most construction personnel to utilize contractor-operated vehicles to travel from Proposed Project staging yards to areas of active construction. Construction workers will drive to staging yards located along the Proposed Project route, park their personal vehicles, and utilize contractor-operated private buses, vans, and pickups to be transported to active work areas. At the end of the day, construction personnel will utilize the same vehicles to return to the staging areas. Personnel (e.g., foremen, inspectors, supervisory staff, vehicle operators, welders, monitors, security, and safety personnel) who require a vehicle as part of their specific role will be exempt from this requirement.		●
APM-TRA-04	At least four weeks prior to construction, the Applicants will notify residents and businesses along the Proposed Project route where driveway access could be temporarily blocked or restricted as a result of construction activities. For each residence or business, the Applicants will provide information regarding when these construction activities are scheduled to occur, the anticipated duration and times of the restricted access, and a contact telephone number. Additionally, a minimum of two weeks prior to construction in any specific section of the Proposed Project, the Applicants will post signage along existing parking areas regarding the potential temporary loss of on-street parking as a result of Proposed Project construction.		

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
APM-TRA-05	No less than 60 days prior to construction, the Applicants will coordinate with applicable emergency service providers that have driveways within 0.5 mile of the Proposed Project route. Prior to construction, the Applicants will solicit input from the affected emergency service providers on how to best construct the Proposed Project while maintaining emergency vehicle access at all times. Options may include the following: • trenching only a portion of a driveway at a time to allow vehicle access via the other side of the driveway; • having trench plates readily available in order to quickly place a temporary bridge for vehicles over the open trench; • designating temporary emergency vehicle detour routes; and • in locations with multiple driveways, only conducting construction activities in front of one driveway at a time to maintain emergency vehicle access. At least one week prior to scheduled construction activities that may impact emergency vehicle access, the Applicants will provide the emergency service providers with information regarding when these construction activities are scheduled to occur, the anticipated duration and times of the restricted access, and a contact telephone number. The Applicants and their contractors will be responsible for ensuring access at all times for emergency service vehicles at the locations where Proposed Project construction is occurring.		●
Utilities and Service Systems			
APM-PUS-01	At a minimum of three months prior to construction, the Applicants will identify and evaluate sources of recycled water from San Diego Gas & Electric Company's Major Projects Water Sourcing Plan in close proximity to the Proposed Project route for use in controlling fugitive dust as well as for hydrostatic testing of the Proposed Project. If an adequate supply of recycled water is available during construction and the use of recycled water will not result in new significant impacts to air quality, greenhouse gas emissions, or traffic as a result of transportation of the recycled water from a recycled water source to construction areas, the Applicants will use recycled water to the extent that it is feasible to do so. If it is determined that the use of recycled water		●

APM Number	Description	Project Design Feature	Proposed Project-Specific Measure
	for construction may result in more than 132,750 miles traveled or an average of 262 truck trips per day and a maximum of 957 truck trips per day during hydrostatic testing, the Applicants will consult with the California Public Utilities Commission to determine if the benefits of using recycled water are sufficient to justify the increased impacts to air quality, greenhouse gas emissions, and traffic. All recycled water uses will be conducted in accordance with the requirements of all applicable local, state and federal regulations and permits related to the transportation, storage, application and discharge of recycled water.		
Cumulative Analysis			
APM-CUM-01	In the event that the Proposed Project and adjacent or intersecting planned and proposed projects are under construction simultaneously within the same roadway but located in adjacent jurisdictions, the Applicants will coordinate with the two adjacent jurisdictions to adjust construction timing and frequency as necessary in light of other planned and proposed projects being permitted at the same time in the same locations to reduce potential cumulative impacts to transportation and traffic. This coordination will be conducted at least four weeks prior to starting construction activities in either of the two adjacent jurisdictions.		●

The Proposed Project is considered to be a linear infrastructure project that will traverse multiple jurisdictional boundaries, natural resource features, and habitat types. Utility projects remain more flexible in the definition of their ultimate configuration and placement than most non-linear, non-utility projects until final design or—in some cases—until installation. The Proposed Project may encounter unique topographical and natural features along the ROW, as well as challenges associated with engineering and existing and proposed land uses. The APMs take into consideration the potential for the Proposed Project to encounter such features and enhance the Applicants' abilities to modify the final design during the installation phase to maximize overall Proposed Project feasibility, while avoiding or minimizing impacts to sensitive environmental resources.

3.12 IMPLEMENTATION OF APPLICANTS-PROPOSED MEASURES

Prior to the start of construction, the Applicants will assemble the construction and environmental teams responsible for implementing and overseeing the APMs listed in Table 3-10: Applicants-Proposed Measures. Contractors and subcontractors working on the Proposed Project will be contractually bound to the requirements and stipulations of the APMs to ensure that the measures are implemented as proposed. The Applicants have developed an environmental compliance management program in order to track, document, and enforce the implementation of APMs throughout each phase of the Proposed Project. Key components of the program are described in the following subsections.

3.12.0 Environmental Compliance Management

The Applicants' environmental compliance team will include an environmental project manager, resource specialists, and environmental monitors to inspect, document, and report on compliance with APMs, as well as all federal, state, and local regulations. The Applicants will assign specialists in water quality, hazardous materials, and natural resources to ensure proper implementation of the APMs and evaluate their effectiveness during construction. On-site monitors will be familiar with the requirements and intent of each APM, and will verify implementation in the field on a daily basis. The status and effectiveness of the APMs will be discussed during regularly scheduled construction meetings.

3.12.1 Environmental Training

Implementation of APM-BIO-07, APM-CUL-01, APM-HAZ-02, and APM-HAZ-03 will occur as part of a Proposed Project-specific environmental training program developed by the Applicants. The program will include a multi-level approach that is commensurate to each worker's role on the Proposed Project. Supervisors, including construction foremen, will participate in an in-depth training session to review the requirements of each APM, permit condition, and/or mitigation plan. Crews and other staff will also receive training and a review of the Proposed Project requirements. All Proposed Project personnel working on the ROW will attend the Applicants' training program prior to starting work.

3.12.2 Monitoring and Inspection

Environmental monitors and contract administrators will be on site during all phases of construction to verify compliance with the APMs and other Proposed Project specifications.

Issues or concerns related to implementation of the APMs will be addressed in the field and/or communicated to the environmental project manager for corrective action. The environmental monitors and contract administrators will have stop-work authority if construction activities threaten a sensitive resource or seriously deviate from Proposed Project requirements.

3.12.3 Reporting and Documentation

Implementation of the APMs will be tracked and documented on a daily basis by the Applicants' environmental monitors. The monitors will use daily environmental inspection reports and digital photographs to document and communicate the status of APMs.

ATTACHMENT 3-A: DETAILED ROUTE MAPS

ATTACHMENT 3-B: TYPICAL CONSTRUCTION EQUIPMENT LIST