

SECTION 4.0

Natural Gas Supply

The CPV Vaca Station (CPVVS) will require construction of an off-site pipeline to supply natural gas to the project site. Pacific Gas and Electric Company (PG&E) operates a high-pressure natural gas transmission pipeline system about 1 mile east of the CPVVS site (Lines 401). The proposed natural gas pipeline would exit the project site at its southeast corner and follow the north side of Fry Road due east to connect with this line, as shown in Figure 4.0-1. The pipe connecting the CPVVS site with the PG&E pipeline will be 16 inches in diameter. Construction primarily will be open trench with a construction corridor of 70 feet or less. No other alternative routes were evaluated because this route is the only direct route that could use existing rights-of-way and utility easements. It is expected that PG&E will construct, own, and operate this new pipeline.

The pipeline will be constructed of alloyed carbon steel in accordance with the American Petroleum Institute (API) specification for gas pipeline. The pipe will have factory-applied corrosion-protection coating. Joints will be welded, inspected using x-ray or other non-destructive (NDE) testing method, and wrapped with a corrosion-protection coating.

4.1 Construction

The construction of the natural gas pipeline will consist of the following:

1. **Trenching width** depends on the type of soils encountered and requirements of the governing agencies. Trenching will be done in accordance with the requirements of the soil to ensure the safety of construction personnel. The optimal trench will be approximately 30 inches wide and 54 inches deep. If loose soil is encountered, a trench up to 10 feet wide at the top and 2 feet wide at the bottom may be required. The pipeline will be buried to provide a minimum cover of 36 inches. The excavated soil will be piled on one side of the trench and used for backfilling after the pipe is installed. The pipeline will be installed through trenching at all locations except where boring or directional drilling is required to pass beneath other buried utilities.
2. **Stringing** consists of trucking lengths of pipe to the right-of-way and laying them on wooden skids beside the open trench.
3. **Installation** consists of bending, welding, and coating the weld-joint areas of the pipe after it has been strung, padding the ditch with sand or fine spoil, and lowering the pipe string into the trench. Bends will be made using a cold bending machine or will be shop fabricated as required for various changes in bearing and elevation. Welding will meet the applicable API standards and will be performed by qualified welders. Welds will be inspected in accordance with API Standard 1104 (API, 1999). Welds will undergo 100 percent radiographical inspection by an independent, qualified radiography contractor. All coating will be checked for holidays (that is, defects) and will be repaired before lowering the pipe into the trench.

4. **Backfilling** consists of returning spoil back into the trench around and on top of the pipe, ensuring that the surface is returned to its original grade or level. The backfill will be compacted to protect the stability of the pipe and to minimize subsequent subsidence.
5. **Plating** consists of covering any open trench in areas of foot or vehicle traffic at the end of a workday. Plywood plates will be used in areas of foot traffic and steel plates will be used in areas of vehicle traffic. Plates will be removed at the start of each workday.
6. **Hydrostatic testing** consists of filling the pipeline with potable water, venting all air, increasing the pressure to the specified code requirements, and holding the pressure for a period of time. After hydrostatic testing, the test water will be analyzed for pH and total dissolved solids (TDS) and discharged to the sanitary sewer system, unless the analysis shows that the water's pH or TDS exceeds the district's discharge criteria. In that case, the water would be trucked to an appropriate treatment or disposal facility. The construction contractor will obtain all necessary approvals for test water use and discharge.
7. **Cleanup** consists of restoring the surface of the ground by removing any construction debris, grading to the original grade and contour, and revegetating or repairing where required.
8. **Commissioning** consists of cleaning and drying the inside of the pipeline, purging air from the pipeline, and filling the pipeline with natural gas.

4.2 Metering Station

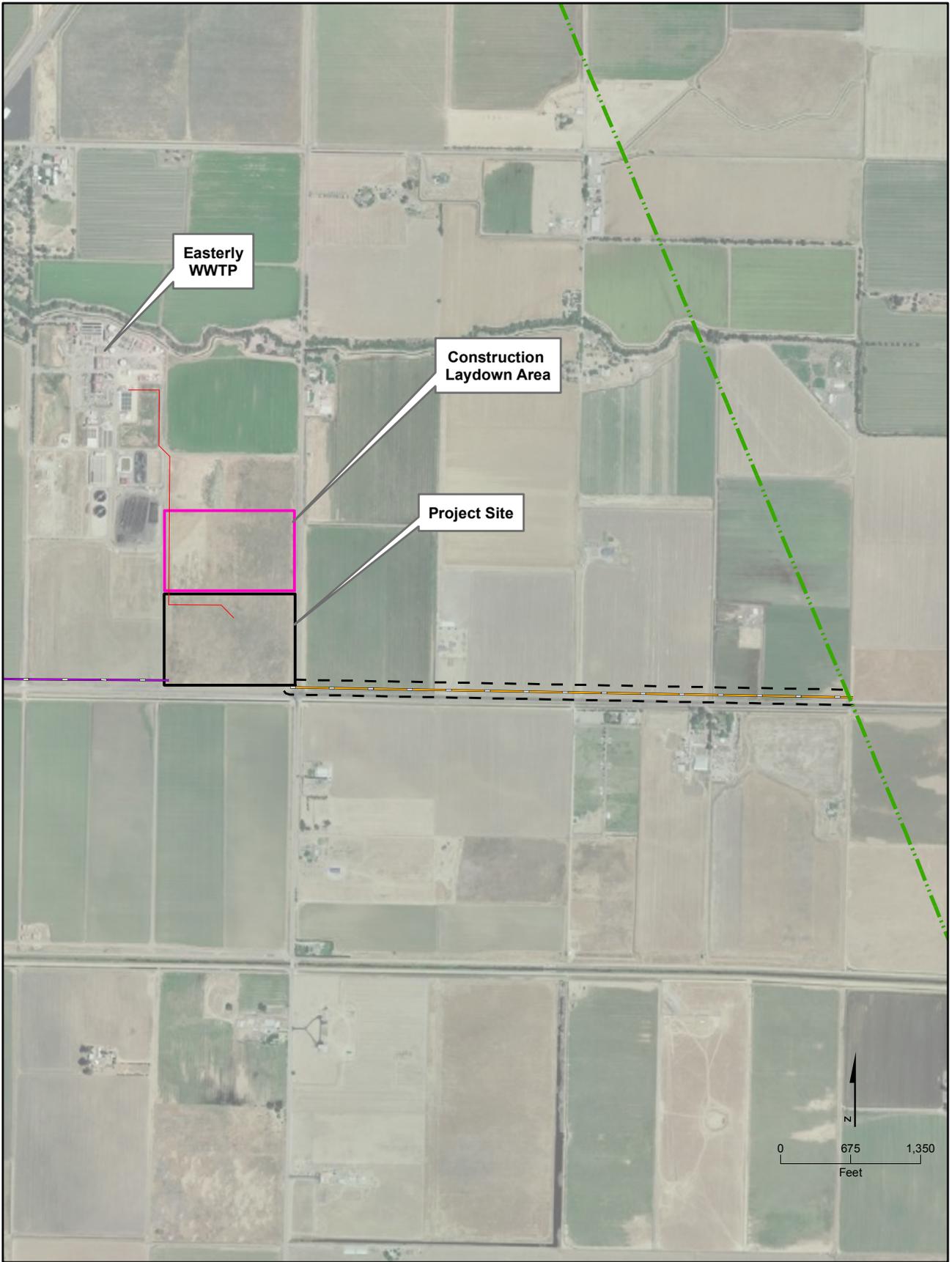
A gas-metering station will be required at the CPVVS site to measure and record gas volumes. In addition, facilities will be installed to regulate the gas pressure and to remove any liquids or solid particles as required.

Construction activities related to the metering station will include grading a pad and installing above- and below-ground gas piping, metering equipment, gas conditioning, pressure regulation, and possibly pigging facilities. A distribution power line will also be installed to provide power for metering station operation lighting and communication equipment. In addition, a perimeter chain-link fence will be installed around the gas metering station for security.

4.3 Pipeline Operations

The proposed natural gas supply pipeline will be designed, constructed, operated, and maintained in accordance with Code 49 Code of Federal Regulations (CFR) 192 and California Public Utilities Commission (CPUC) General Order No. 112. Specifically, the pipeline will be designed in accordance with the standards required for gas pipelines in populated areas. It will be installed with a minimum of 36 inches of cover as required by the Code of Federal Regulations.

PG&E's standard operations and maintenance plan will be in place, addressing both normal procedures and conditions and any upset or abnormal conditions that could occur. Periodic leak surveys and cathodic protection surveys will be performed along the pipeline, as



LEGEND

- -70ft Construction Corridor
- Natural Gas Pipeline Route
- - - Electrical Transmission Line Route
- - - Utility Corridor to WWTP
- PG&E Line 401
- Construction Laydown Area
- Project Site

FIGURE 4.0-1
NATURAL GAS LINE CORRIDOR
 CPV VACA STATION
 VACAVILLE, CA

required by 49 CFR 192. The pipeline will be continuously protected by a cathodic protection system. PG&E's standard emergency plan will provide for prompt and effective responses to upset conditions detected along the pipeline or reported by the public. This plan is reviewed with local agencies annually.

PG&E will own and operate the metering facility to measure the gas supply to CPVVS. A pipeline Supervisory Control and Data Acquisition system will provide flow rate and pressure data to PG&E and CPVVS. Communication with PG&E gas line operations will be by dedicated telephone lines or other means, such as Cellular Digital Pocket Data.

4.4 References

American Petroleum Institute (API). 1999. *Welding of Pipelines and Related Facilities*. ANSI/API 1104, 19th edition. September.

California Public Utilities Commission (CPUC). CPUC General Order No. 112: Design, Construction, Testing, Maintenance and Operation of Utility Gas Gathering, Transmission and Distribution Piping Systems.