Chapter 2
Project Description

This chapter provides a description of the project area, project background, facility and route selection and evaluation process, project components, construction methods, operations and maintenance program, and required permits and approvals expected for the proposed project.

Except for Figures 2-1 (project area map), 2-2 (location of the project components), and 2-3 (alternative pipeline alignments and metering station alternative), the figures referenced in this chapter are provided in Appendix A.

Site Description

The proposed project is situated in the Montezuma Hills of Solano County, California (Figure 2-1 shows the project area boundary). The project components will extend between the Kirby Hills and Birds Landing Road (Figure 2-2). The western portion of the project area contains the Kirby Hills and is located within the Suisun Marsh Secondary Management Area. The Kirby Hills are located west of Shiloh Road and are predominantly non-native annual grasslands that are currently grazed by cattle. The remaining portion of the project area (east of Shiloh Road) crosses through road right-of-way (Shiloh Road), dryland farmed areas, and non-native annual grasslands that are also used for livestock grazing.

The project area has been heavily disturbed by agricultural practices and previous natural gas projects, and now supports very little natural undisturbed habitat. In addition, the Shiloh I Wind Farm that will be constructed in the area between Shiloh and Olsen Roads will result in further disturbance to the project area.

Project Background

Many California gas customers can choose to purchase different natural gas services from different companies. Increasingly, large commercial and industrial customers and groups of smaller customers are arranging, on their own or through agents, to purchase their own natural gas supplies directly from gas producers and then pay pipeline companies and local gas utilities to deliver the purchased gas to the customers' facilities. These customers may also benefit from purchasing natural gas storage services. This service allows customers to

purchase and store gas when prices are relatively low and supplies are relatively high, and then to withdraw the gas from storage for use when prices are high or supplies are scarce—such as during a severe cold spell. Storage service also allows customers to inject gas during periods of high or over supply and to withdraw gas during periods of low supply and high demand. During supply emergencies, such as when pipeline deliveries are cut off by earthquakes or other natural disasters, stored gas may be the only source available in a given service area.

The proposed project will include the same general area and the same depleted reservoir that was occupied by previous gas storage operations in the Kirby Hills. The Kirby Hills gas field, including the Domenquine reservoir to be used for storage, was discovered in 1945 by Shell Oil. Subsequently, Sinco acquired the leases from Shell Oil in 1972. In August 1975, Dow Chemical Company acquired the leases from Sinco and converted the Domenguine reservoir to natural gas storage. Dow conducted gas storage operations in the Kirby Hills between 1977 and 1993. The underground gas storage reservoir has maintained its integrity from 1977 to the present.

Lodi Gas Storage proposes to use the depleted natural gas production reservoir for a storage facility. The reservoir is located at the western edge of the Montezuma Hills several miles southeast of the City of Fairfield. Although some minor production still occurs from other reservoirs in the field, most of the natural gas has been extracted. A dome-shaped layer of hard shale at a depth of approximately 2,000 feet under ground caps the reservoir and keeps the gas trapped. Historically, total natural gas production from the reservoir was 13.85 billion cubic feet (BCF)**.** At the end of the primary production period, the amount of recoverable native gas remaining in the reservoir was estimated to be 0.10 BCF. Dow Chemical Company operated the field in storage service from 1977 to 1993. Over that period, Dow injected a total of approximately 11.95 BCF of gas and withdrew a total of approximately 11.61 BCF. The remaining storage gas in the reservoir is estimated to be 0.34 BCF. A number of existing facilities are currently located at the project site, including wells, pipelines, and metering facilities.

The PG&E Backbone Transmission System's 400 and 401 natural gas pipelines bisect the Montezuma Hills area and are oriented in a northwest/southeast direction. These pipelines transport natural gas from PG&E's interconnection with interstate pipelines, other local distribution companies, and the California gas fields to PG&E's local transmission and distribution system.

Project operations would involve tapping into the PG&E 400 pipeline near mile 286.65, constructing facilities to convey natural gas from the PG&E 400 pipeline approximately 7 miles to the Kirby Hills gas field, storing the gas in the existing natural reservoir, withdrawing the stored gas on demand from Lodi Gas Storage customers, and conveying the withdrawn gas to the PG&E 400 pipeline for delivery to those customers.

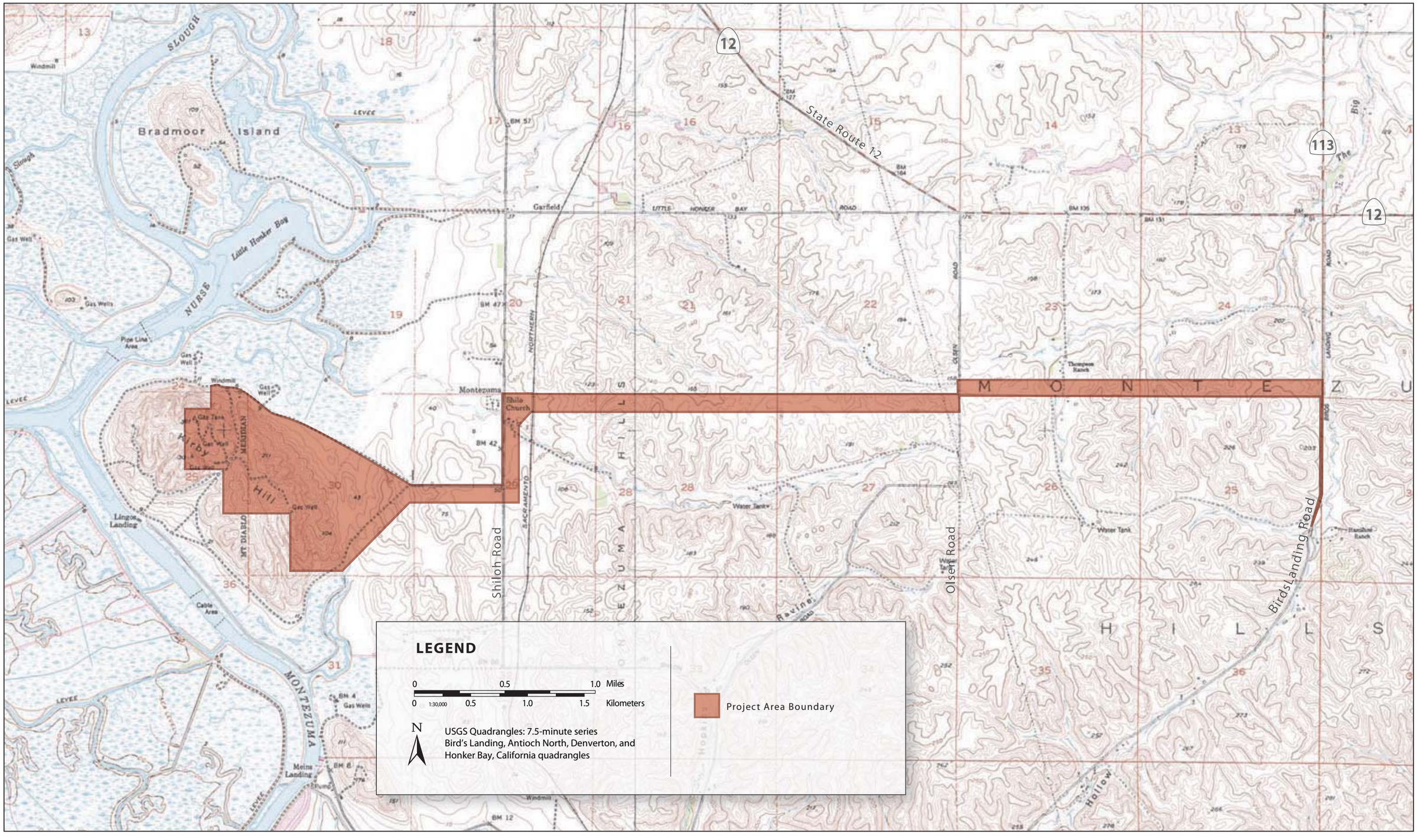

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Figure 2-1
Project Area

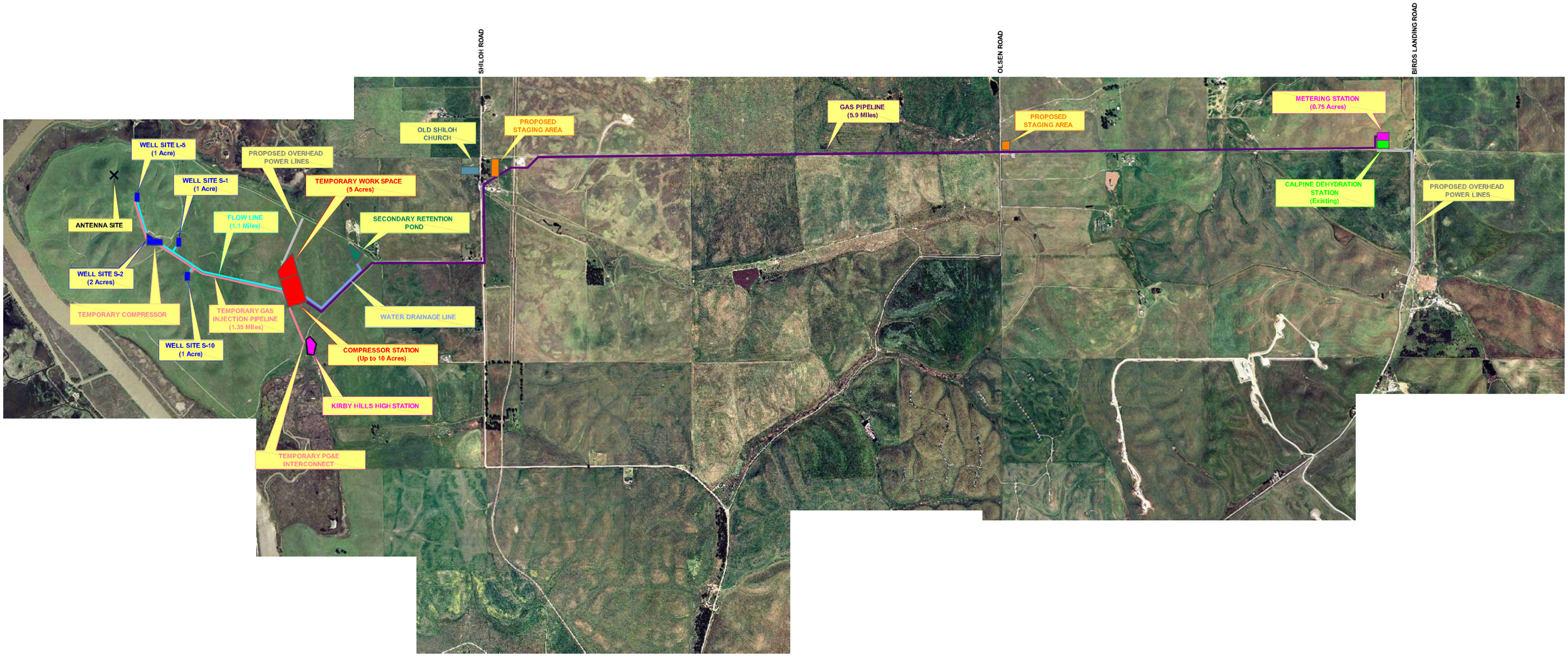

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Figure 2-2
Location of the Project Components

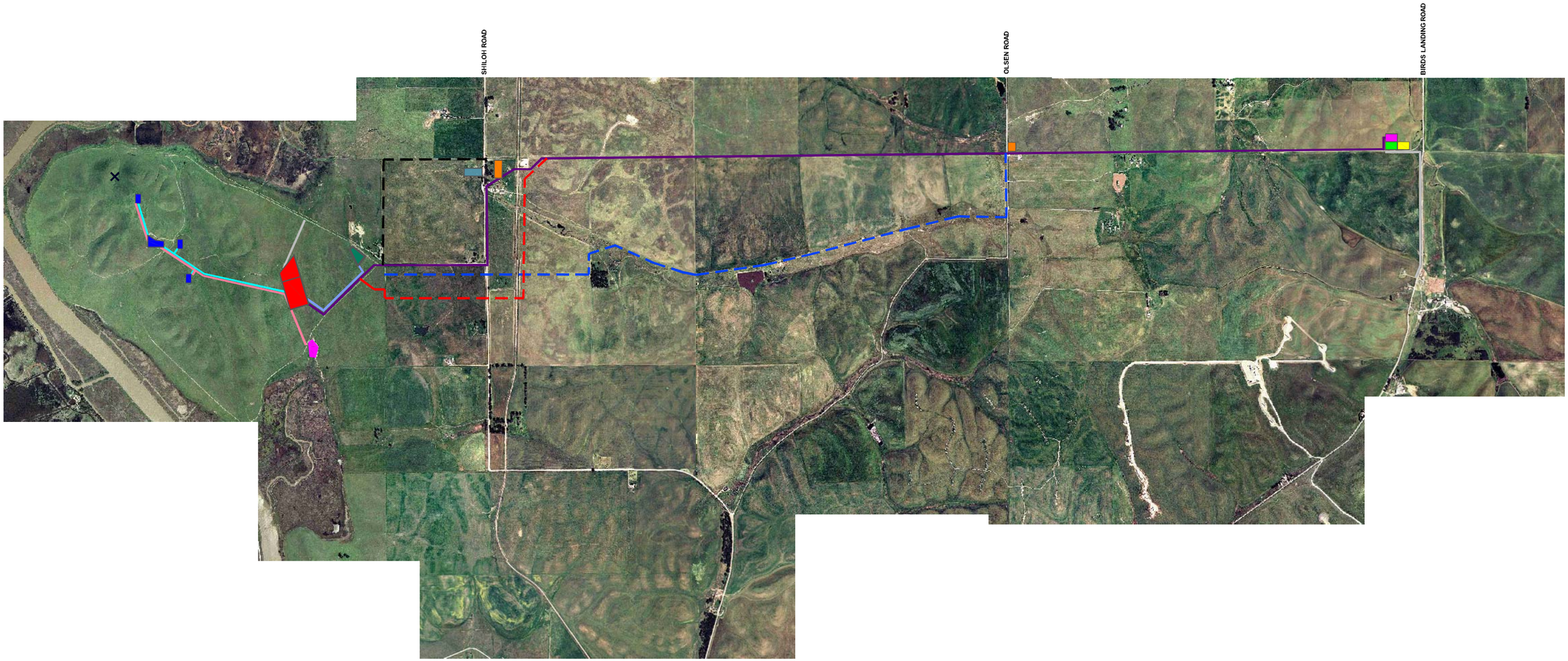

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Figure 2-3
Project Alternatives

Facility and Route Selection and Evaluation Process

CEQA requires that decision makers consider reasonable alternatives to proposed projects to avoid significant environmental effects. Section 15126(d) of the State CEQA Guidelines requires that a description of a range of reasonable alternatives to a project that would "feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." Alternatives must be considered, even if they might impede to some degree the attainment of the project objectives or make it more costly. The point of considering alternatives is not to identify a different project to be developed, but to provide a basis for comparison and to foster informed decisions.

Lodi Gas Storage identified several potential facility and pipeline alignment alternatives during the early planning phase of this project. Jones & Stokes walked each of these pipeline alignment alternatives, potential staging areas, and facility sites to identify potential sensitive resource issues and constraints. The alternative pipelines and metering station alternative are shown in Figure 2-3. Jones & Stokes and the project engineering/right of way team then conceptually evaluated each of these alternatives in order to develop a project that met Lodi Gas Storage's project objectives, minimized potential impacts on landowners and environmental resources, avoided potential state and federal permit triggers, and was cost-effective.

The alternative pipeline alignments and facility locations shown in Figure 2-3 were eliminated from further consideration because of landowner issues and sensitive biological resource issues (primarily wetlands and special-status species habitat). The proposed project shown in Figure 2-2 was determined to be the best project layout because it meets the objectives of the project and avoids or substantially lessens any of the significant effects of the project. The pipeline alignment and facility locations avoid and minimize resource impacts, avoid state and federal permit triggers (where possible), and meet the various landowners' needs and restrictions.

Project Components

The proposed project comprises the following six primary components:

1. Metering station
2. Gas pipeline
3. Compressor station
4. Flow line
5. Injection/withdrawal wells
6. Temporary gas injection system

Each project component is described below, as well as the proposed construction methods, phasing, schedule, and operations and maintenance program. Figure 2-2 provides a general overview of the major project components. Figures 2-4a through 2-4c in Appendix A show more detailed layouts of the project components and associated facilities, staging areas, and access roads.

Metering Station

The metering station will be constructed on an approximately 0.75-acre site, located immediately west of Birds Landing Road. The site is near the PG&E 400 and 401 pipelines. It is adjacent to an existing metering and dehydration station that is part of the Montezuma pipeline system owned and operated by Calpine (Figure 2-4c in Appendix A). The metering station will be located on the north side of the Calpine facility (see photographs of the site in Figure 2-5 in Appendix A). Access to the metering station will be provided via an existing gravel road off of Birds Landing Road. A new 250-foot-long access road will be constructed between this existing gravel road and the metering station, and will extend along the west side of the Calpine facility (see Figure 2-2). This new access road will be approximately 20 feet wide and will be graveled.

The purpose of the metering station is to accurately measure the amount of natural gas withdrawn from and returned to the PG&E pipeline. The new metering station site will contain low-lying surface facilities; it will be graveled for maintenance purposes and will be fenced to control unauthorized access. The metering station layout is provided in Figure 2-6 in Appendix A.

Lodi Gas Storage will contract with the existing local power provider (PG&E) to extend to the metering station an existing, aboveground distribution line located along Birds Landing Road. The power line will be a single-phase service run on single wooden pole structures.

To facilitate Supervisory Control and Data Acquisition (SCADA) communications with the metering station, a small communications tower will be installed on the peak of Kirby Hill (this tower is identified as the “Antenna Site” and is shown in Figure 2-4a in Appendix A). The tower will be freestanding, with a base that is approximately 3 feet by 3 feet and an overall height of less than 13 feet. Access to this tower will be provided by an existing two-track road (Figure 2-4a in Appendix A). This road will be improved in order to provide construction and maintenance access to the tower.

Gas Pipeline

A pipeline, up to 16 inches in diameter, will extend from the metering station to the compressor station located at the Kirby Hills site, a distance of approximately 5.9 miles (see Figure 2-4a in Appendix A and description below). The pipeline will be bidirectional, allowing natural gas to flow to and from the Kirby Hills gas field.

Starting at the compressor station, the preferred pipeline route runs eastward through non-native annual grassland and a tilled agricultural field. At Shiloh Road, the pipeline route runs north along the east side of the road (on private property) and under an unnamed seasonal drainage. After the alignment crosses the drainage, it runs northeast toward the Bay Area Electric Railroad Association, Inc. After crossing under the railroad tracks, the pipeline route continues east and runs along the south side of an existing Calpine gas pipeline until it reaches Olsen Road. This segment of the pipeline is located in rolling hills dominated by dryland farming and livestock grazing. At Olsen Road, the pipeline alignment crosses to the north side of the Calpine line until it reaches the metering station near Birds Landing Road. This portion of the pipeline is also used for dryland farming and livestock grazing.

Figure 2-7 in Appendix A contains representative photographs of the pipeline route.

Compressor Station

The compressor station will be located on a site up to 10 acres in size at the eastern base of Kirby Hill (see Figure 2-4a in Appendix A). The site is behind a low hill and therefore generally will be screened from view. The compressor station will be constructed in an area that is currently dominated by non-native annual grassland (see Figure 2-10 in Appendix A).

The compressors will consist of natural gas engines with a combined total horsepower (hp) of 7,200 hp coupled to reciprocating gas compressors. The current phasing of the development calls for two units to be installed initially and a maximum of four units being put into operation at some point in the future, depending on market demand and reservoir technical considerations. The compressor units will be powered by natural gas and will be housed in a building designed to fit in with the generally agricultural nature of the surrounding area. The building will be designed to control noise by installing appropriate insulation, providing baffling of air vents, directing air vents away from all nearby residences, and providing appropriate muffling equipment. The building will be designed to meet all relevant Solano County noise ordinances. The compressor station also will be required to meet the standards set by the Bay Area Air Quality Management District (BAAQMD). These standards include use of best available control technology (BACT). Lodi Gas Storage will be required to obtain a permit of operation from the BAAQMD for the operation of the facility.

The site will be fenced and graveled for access control, fire control, and maintenance purposes. The compressor station will be fully encircled by an earthen berm to prevent uncontrolled runoff from the site.

The compressor station will have a maximum injection and withdrawal capability of 100 million cubic feet (MMCF) of natural gas per day. The purpose of the compressors is twofold. They will provide sufficient pressure to push the natural

gas into the storage reservoir. The compressors also will boost the pressure of the gas withdrawn from the storage reservoir so that it can be delivered into the PG&E line 400 pipeline. The plot plan for the compressor station is provided in Figure 2-8 in Appendix A. A process flow diagram is provided in Figure 2-9 in Appendix A. This diagram shows the connections and natural gas flow between the project components.

As part of this project component, Lodi Gas Storage will install an electrical overhead power line, construct a primary and secondary retention pond, install a water well, and improve existing access roads. Each of these elements is described below.

Electrical Overhead Power Line. Lodi Gas Storage will construct an electrical overhead power line to serve the compressor station (see Figure 2-4a in Appendix A for the location of this overhead power line). The power line will be approximately 1,200 feet long and will be connected to an existing transmission line in the Kirby Hills. This existing line runs along the northern edge of the property boundary, adjacent to the existing Kirby Hills access road.

Primary and Secondary Retention Ponds. A primary retention pond will be constructed on the 10-acre compressor station site and an existing abandoned gravel quarry, located approximately 2,000 feet east of the compressor station will be used as a secondary retention pond. An 8 inch or smaller drainage line will be installed parallel with the gas pipeline from the compressor station as far as the abandoned gravel quarry. The retention pond and drainage line are shown in Figure 2-2.

Access Road Improvement. An existing access road that runs along the northern edge of the Kirby Hills (referred to as the Kirby Hills access road) will provide construction and future maintenance access to the compressor station. This road will be improved as part of the proposed project. A two-track dirt road off of this main gravel road also will be improved to provide direct access to the facility. This connecting access road will be gravel base and will be approximately 20 feet wide. These access roads are shown in Figure 2-4a and Figure 2-10 in Appendix A.

Water Well. A domestic water well will be drilled within the 10-acre compressor station site to supply water to the control building and miscellaneous hose bibs throughout the facility. Other than the use of water in the control building and occasional use through the hose bibs, the gas storage facility will not consume water as part of the gas storage operation.

Flow Line

A 12-inch flow line will run from the compressor station to the injection/withdrawal wells at the top of the Kirby Hills (see Figure 2-4a in Appendix A and the description of the wells below). The flow line will be approximately 1.1 miles long and will be installed approximately 36 inches deep.

The purpose of the flow line is to convey natural gas from the compressor station to the injection/withdrawal wells for injection into the geologic formation and storage. The line will also convey the withdrawn gas from the wells to the compressor station so that it can be compressed to sufficient pressure for injection into the PG&E 400 pipeline.

Figure 2-10 in Appendix A contains a photograph of the area where the flow line will be connected to the proposed compressor station.

Injection/Withdrawal Wells

Up to 10 new injection/withdrawal wells will be constructed on four existing well pads sites in the Kirby Hills. The injection/withdrawal well sites have been previously graded and contain existing wells and related facilities. The wells are identified in Figure 2-4a in Appendix A as Well Sites L-5, S-1, S-2, and S-10 (Figure 2-11 contains photographs of Well Sites S-2 and S-10). The wells will be completed into the storage formation, which will store up to 7 BCF of natural gas. The wells will be directionally drilled from the well pads into the storage formation. The sites are not visible from surrounding areas.

Based on the characteristics of the storage reservoir and a review of the records of the previous gas storage operation, it is anticipated that very little water will be produced during the withdrawal of gas. In the event that the actual water production experienced, once the facility is in operation, is significant enough to require frequent trucking of the water offsite for disposal, a disposal well will be drilled on the 10-acre compressor station site and completed in a suitable formation for re-injection. Otherwise, all produced water will be trucked offsite for disposal at an approved facility.

Existing dirt and gravel roads will be improved in order to provide construction and future maintenance access to the wells. These roads will be improved as part of the proposed project. The access roads to the well sites are shown in Figure 2-4a in Appendix A.

Temporary Gas Injection System

The purpose of the temporary gas injection system is to inject natural gas into the storage reservoir while the permanent facilities are under construction. The storage reservoir is nearly depleted and will require the injection of natural gas prior to offering normal storage operations. The temporary gas injection system can be fully constructed and installed in a short period of time once the project is approved. By injecting gas during the construction of the permanent facilities, the storage facility will be ready to provide storage services as soon as the permanent facilities are complete. The temporary gas injection system will be designed to inject up to 10 mm standard cubic feet per day (scfd) of natural gas into the reservoir.

The temporary gas injection system includes a temporary PG&E interconnect at the Kirby Hills High Station, a 4-inch-diameter temporary gas injection pipeline, and a temporary compressor. These system elements are described below and shown in Figure 2-2.

Temporary PG&E Interconnect

The temporary gas injection system will provide a temporary interconnect with the PG&E 182 Line at the Kirby Hills High Station (located on the Kirby Hills Ranch, just south of the proposed compressor station—see Figure 2-4a in Appendix A) and a temporary skid-mounted meter. The meter will be installed within a 15- by 30-foot area. This temporary meter will be removed after the permanent facilities are put into operation.

Temporary Gas Injection Pipeline

As part of this system, a 4-inch-diameter temporary gas injection pipeline will be installed (see Figure 2-4a for the location of this pipeline) that will be approximately 1.35 miles in length. The pipeline will be routed from the temporary PG&E interconnect and meter along the flow line pipeline through the compressor station and will connect to Well Site S-2 (Figure 2-4a). The segment from the temporary PG&E interconnect and meter to the compressor station will be abandoned in place after the permanent facilities are operating.

Temporary Compressor

The temporary compressor will be a natural gas-fired, reciprocating engine-driven compressor that is approximately 1,000 hp or less. The compressor will be a skid-mounted unit and will not be enclosed in any type of building. The compressor will be located on Well Site S-2 and will be similar to the existing production compressor that is currently located on Well Site S-2 (see Figure 2-11 in Appendix A for a photograph of the temporary compressor site). It will be connected to Well Sites S-1 and S-2 and will be used to inject natural gas into the storage reservoir. After the permanent facility is put into operation, the temporary compressor will be removed.

Construction Methods

Pipeline Construction Methods

The following section describes the methods that Lodi Gas Storage will use to install the gas pipeline and flow line in upland areas. Currently, Lodi Gas Storage is planning to avoid all potential waters of the United States (including the one unnamed drainage and several seasonal wetlands) by horizontally boring under these features. Crossings of the railroad, Shiloh Road, and Olsen Road

may also be bored. Horizontal boring methods are described toward the end of this section.

Surveying Right-of-Way

The pipeline alignment will be surveyed and identified prior to beginning construction activity. Alignment identification will include staking the centerline of the pipeline, foreign line crossings, and the limits of the construction work area. As part of this preconstruction phase, environmentally sensitive areas (e.g., wetlands and special-status species habitat) also will be marked.

Underground Facilities Coordination

To avoid or minimize construction conflicts with existing utilities and public services, Lodi Gas Storage will coordinate closely with the Solano County Public Works Department during final project design to identify any potential utility conflicts and initiate relocation efforts. Lodi Gas Storage will also contact Underground Service Alert at least 2 full working days before construction activity begins. Underground Service Alert ("USA") will contact all owners of underground pipelines and utilities that are registered with USA and inform them that construction is about to begin in their service area. This notice allows those owners to mark the areas near the construction site where their underground facilities are located so that these areas can be avoided during project construction.

Grading Right-of-Way

The dryland-farmed and non-native annual grassland portions of the pipeline right-of-way will be graded with a bulldozer or similar equipment as necessary to create a safe and level work surface. Where necessary, topsoil will be stripped from all areas to be graded and will be sequestered in a manner to prevent mixing with other soils. As described below under "Best Management Practices," sediment control devices such as silt fences and straw bales will be installed as necessary around waterbodies, roads, and other areas during clearing and grading.

Pipeline Trenching Methods

Trenching involves excavating a ditch for the pipelines (including the 16-, 12-, and 4-inch-diameter pipelines) and will be accomplished with backhoes or trenching machines. The trench will be excavated to a depth sufficient to provide the appropriate amount of cover, which generally will be a minimum of 3 feet over all pipelines. Depth of cover will be a minimum of 5 feet at road crossings (Shiloh and Olsen Roads) and a minimum of 4 feet at ditches adjacent to roads. Trench spoil will be deposited on the spoil storage portion of the right-of-way. The trench width for the pipelines will be approximately 4 feet; however, the trench may be wider in wet or sandy areas to allow for unstable soils and a sloped

trench wall. Based on the known geologic conditions in the project area, blasting will not be required.

Except along Shiloh Road and in areas that support sensitive resources (e.g., seasonal wetlands), the construction easement will be 75 feet wide with a permanent easement width of 30 feet. In areas that contain sensitive biological resources, the pipeline corridor will be reduced to avoid direct and indirect effects on adjacent sensitive resources.

Stringing, Welding, and Installation

After the construction right-of-way has been prepared and the trench excavated, pipe and associated support timbers (skids) will arrive on the job site by highway trucks, along with pipe handling equipment in the form of crawler-mounted sideboom tractors and hydraulic cranes. The trucks will travel down the right-of-way, being off-loaded as they travel; they will place joints of pipe end-to-end, supported by skids with pad material to protect the coating. When emptied of their cargo, trucks will either turn around in areas provided or they will proceed to the next public road crossing for egress. Mud on the vehicle tires, wheels, and undercarriage that could be dropped in transit on public roads will be removed before the vehicles leave the right-of-way.

Pipeline segments, bent to conform to the trench contour, will be placed along the right-of-way parallel to the trench. Pipe ends (bevels) will be cleaned prior to welding by means of filing or wire brushing to remove rust, scale, and dirt. A sideboom crawler tractor or other suitable hoisting machine will lift each joint of pipe to abut and align with the bevel of the previous joint, and a suitable space for welding will be attained. Welders qualified by testing to the appropriate welding code then will apply an initial pass of weld and will progress to the next aligned joint as the first weld pass is applied. Subsequent welding passes will be applied by other welders following the initial pass, until satisfactory weld metal has been applied. Each pass, including the final pass, will be mechanically cleaned of slag by wire brush and/or grinding disc, and the welds will be radiographically or ultrasonically inspected for defects. Welds that are defective beyond code limits will be repaired by grinding out the defect and rewelding the objectionable area, or they will be removed and rewelded.

Welding will be performed in accordance with the American Petroleum Institute Standard Number 1104, U.S. Department of Transportation (DOT) pipeline safety regulations 49 CFR Part 192 (latest editions). Completed welds will be visually and radiographically or ultrasonically inspected in accordance with the same standards to determine the integrity of the welds.

After passing quality control checks, the weld areas (field joints) will be coated with either a powdered epoxy applied to induction-heated weld areas; with a liquid epoxy; or with a mastic sleeve that, when heated, will shrink to form a snug fit on the pipe, and the mastic will become viscous to eliminate air pockets and provide adhesion. The pipe will be visually checked for damaged coating (holidays), and damaged areas will be repaired by means of melting a stick form of epoxy onto the damaged area.

Pipeline sections that are ready to be installed into the trench will be lowered in by means of nylon straps or wheeled "cradles" suspended from sideboom tractors or other hoisting equipment. Where rock is encountered, the bottom of the ditch will be padded with sand or fine-grained soils. After the last handling, an electrical coating tester attached to a girth spring will be passed along the entire length of pipe, alerting by audible signal the presence of defects (holidays) in the pipe coating. The lowering operation will cease until the defect is repaired. Inspectors will ensure, that the minimum required cover is attained. This will be accomplished by measuring the pipe depth.

Trench Backfilling

After the pipe is placed into the trench, the trench will be backfilled with the previously excavated material. Although not anticipated, where topsoil is stored separately from subsoil, the subsoil will be backfilled first and then the topsoil will be replaced. Although not anticipated, if rock conditions exist in the Kirby Hills, a layer of rock-free soil will be placed over the pipe to protect the coating, and then the backfill operation will be completed. A soil mound will be left over the trench to allow for soil settlement, unless otherwise required by the landowner.

Horizontal Boring Method

The following areas in the project area will be crossed using a horizontal boring method: an unnamed seasonal drainage, Shiloh Road, three seasonal wetlands (ryegrass swales), and the railroad corridor (see Figures 2-3b and 2-3c in Appendix A for the bore locations). This method involves the excavation of bore pits on each side of the crossing to a depth below the invert elevation of the pipe. An auguring machine is lowered into the bore pit and a hole is then augured along the alignment and a pilot pipe is jacked forward, behind the auger head. When the auger reaches the bore pit on the opposite side, the carrier pipe is pulled or jacked through as the pilot pipe is removed.

Alternately a pilot hole may be wet bored by hydraulic cutting action with a jet nozzle and then reamed to the appropriate diameter with a reaming bit. These types of guided bores typically use bentonite, which is a fine, nontoxic clay that, when mixed with water, provides the necessary lubricant and operating fluid for the drilling process. The mixture is injected into the drill under pressure and is recirculated back to the surface, where it is filtered and reused.

Spill prevention countermeasures contained in the Storm Water Pollution Prevention Plan (SWPPP) (described below) will be developed and implemented to prevent or minimize the risk of bentonite entering the seasonal drainage during boring. Although bentonite contamination occurs rarely, bentonite can reach the ground surface and enter surface waters if the bore encounters a rock fracture during high-pressure boring operations, termed a "frac-out." The risk of bentonite reaching the surface or surface waters will be minimized because Lodi Gas Storage's contractor will be directed to use the smallest available boring equipment, which injects the bentonite at lower pressures. Additionally, boring

will occur during the summer months when the drainage is dry and does not contain any flowing water.

Lodi Gas Storage will prepare a boring plan for the drainage crossing that includes a detailed description of the drilling unit, hole diameter, depth of cover, directional survey and control plan, mud system, additives, and mud pumping pressures.

As part of the bore plan, Lodi Gas Storage will develop a frac-out contingency plan. The plan will focus on minimizing the potential for a frac-out associated with tunneling activities; providing for the timely detection of frac-outs; and ensuring an organized, timely, and "minimum-impact" response in the event of a frac-out and release of drilling lubricant (i.e., bentonite). The plan will contain the following measures:

- A full-time monitor will attend all drilling to look for observable frac-out conditions or lowered pressure readings on drilling equipment.
- If a frac-out is identified, all work will stop, including the recycling of drilling lubricant. In the event of a frac-out into water, the pressure of water above the tunnel will keep excess mud from escaping through the fracture. The location and extent of the frac-out will be determined, and the frac-out will be monitored for 4 hours to determine whether the drilling lubricant congeals (bentonite will usually harden, effectively sealing the frac-out location).
- If the drilling lubricant congeals, no other actions will be taken that would potentially suspend sediments in the water column.
- Surface releases of bentonite will be allowed to harden and then will be removed.
- The contingency plan will identify additional measures to be taken to contain or remove the drilling lubricant if it does not congeal.

Pipeline Testing

After construction and prior to placing the pipelines in service, the completed pipelines will be hydrostatically tested. Hydrostatic testing will be conducted in accordance with the requirements of U.S. DOT pipeline safety regulations 49 CFR Part 192, Lodi Gas Storage testing specifications, and applicable permits. The flow line and gas pipeline will be tested independently. Approximately 350,000 gallons of water will be used for hydrostatic testing. This water will be obtained from existing public or private water supplies, which have not yet been identified. The test water will be filtered through hay bales and discharged into upland agricultural areas.

Compressor Station Construction

Construction activities for the compressor station will involve clearing and grading of the site; constructing a perimeter earthen berm and equipment and building foundations, and installing the perimeter fencing; erecting structures to

house the compressors and associated facilities; installing equipment and piping; and cleanup and restoration of the site. Construction of the compressor station is estimated to take 9 months, subject to weather and equipment delivery.

The site for the compressor station will be cleared of vegetation and graded as necessary to create a level surface for the movement of construction vehicles and to prepare the area for constructing foundations. Construction activities and storage of construction material and equipment will be confined to the 10-acre compressor station site and the adjoining temporary workspace (see Figure 2-3a in Appendix A for the limits of this work space).

Excavating required for the foundations will be performed as needed, and all backfill will be compacted in place. Excess soil will be used on site or will be disposed of in an approved area off site. Compressor building construction will begin after the compressor/engine skids are installed on concrete foundations. Typically, the steel frame of the building is erected, followed by installation of the roof, exterior casing, and insulation as may be needed for noise attenuation. The compressor building will be designed to meet the Solano County noise requirements, and a noise abatement silencer will be installed on the engine exhausts.

Gas pressure piping at the compressor station will involve welded construction, except where connected to flanged components. The piping work may begin in a fabrication shop off site. If offsite fabrication is used, the prefabricated pieces will be shipped to the site and installed in place. Piping installed below grade will be coated for corrosion protection prior to backfilling, and a cathodic protection system will be installed to protect underground piping. Aboveground valves and piping will be installed on concrete pipe supports, and protected from external corrosion by paint coatings.

Equipment such as the glycol dehydration units, reboilers, and coolers will be installed on pads or skids. Pig launchers ("pigs" are devices used to clean the line) and receivers will be installed on pads with concrete containment. The aboveground storage tanks will be installed within diked areas or otherwise installed within secondary containment. Prior to placing the compressor station in service, the gas piping system (both above and below ground) will be hydrostatically tested. Controls and safety devices, such as the emergency shutdown system, relief valves, gas and fire detection facilities, and other protection and safety devices, will be checked and tested.

After completion of start-up and testing, the compressor station site will be graded, and disturbed areas will be graveled or re-vegetated with a sterile grass. Cleanup and restoration of various parts of the site will be completed as work on the area is finished. The access roads and parking areas will be graded and graveled, or other aggregate will be spread on the surfaces.

Metering Station Construction

Construction activities for the metering station will involve clearing and grading the site; constructing equipment and piping foundations, and installing the perimeter fencing; installing equipment and piping; and cleanup and restoration of the site. Construction of the metering station is estimated to take 6 weeks, subject to weather and equipment delivery.

The site for the metering station will be cleared of vegetation and graded as necessary to create a level surface for the movement of construction vehicles and to prepare the area for constructing foundations. Construction activities and storage of construction material and equipment will be confined to the 0.75-acre metering station site.

Excavating required for the foundations will be performed as needed, and all backfill will be compacted in place. Excess soil will either be used on site or disposed of in an approved area off site.

Gas pressure piping at the metering station will involve welded construction, except where connected to flanged components. The piping work may begin in a fabrication shop off site. If offsite fabrication is used, the prefabricated pieces will be shipped to the site and installed in place. Piping installed below grade will be coated for corrosion protection prior to backfilling, and a cathodic protection system will be installed to protect underground piping. Aboveground valves and piping will be installed on concrete pipe supports, and protected from external corrosion by paint coatings.

Equipment such as the meter runs, odorant injection unit, and meter building will be installed on pads or skids. A pig launcher will be installed on pads with concrete containment. Prior to placing the metering station in service, the gas piping system (both above and below ground) will be hydrostatically tested. Controls and safety devices will be checked and tested.

After completion of start-up and testing, the metering station site will be graded, and disturbed areas will be graveled or re-vegetated with a sterile grass. The access road will be graded and graveled, or other aggregate will be spread on the surfaces.

Injection/Withdrawal Well Construction

Well pads will be cleared of surface materials and vegetation and then leveled and graded to accommodate drilling equipment. The pad sites will be graded flat, with drainage and runoff contoured to a collection point in order to control stormwater discharge.

Once the site is prepared and contoured, the mobile drilling rig and associated equipment and tanks will be driven to the pad. The type of drilling rig to be used is self-contained and will be relocated for each well. Typical equipment

associated with the rig includes pipe racks, substructure, mud system, changing quarters, a "doghouse" and tool pusher trailer, and power pack.

The drilling rig will operate 24 hours per day, 7 days per week while each well is drilled and completed. There will be two, 12-hour personnel shifts each day. After the drilling/completion of a well is complete, the drilling rig will be relocated to the next well position. Equipment and materials typically will be delivered during daylight hours.

Drilling activities typically involve the use of the rig's rotary table to turn the drilling bit and attached drill pipe. As the bit advances deeper into the subsurface, additional pipe is added to the "drill string." Lengths of pipe are taken up from the pipe rack and held in place until the "driller" is ready to attach the new lengths. After conducting safety checks, the rotary table is stopped, the drill string is unscrewed, and new lengths are added. The system is re-pressurized and drilling continues. Drilling mud is used to lubricate the bit, bring drill cuttings back to the surface, and control down hole formation pressure. All fluids used in or for the drilling operation will be contained in temporary mobile tanks or 55-gallon drums stored within a containment area. Fluid and mud circulation systems are based on closed-loop designs, which result in no discharge. Once the well is in place, ancillary valving, piping, and monitoring equipment is installed and tested.

Setting depth of the well may vary depending on the exact depth of the reservoir at each specific well location. The wellhead will be about 10 feet in height and will be connected to a section of aboveground flowline containing the valve, flow control valve, flow meter, and pressure gauge. A manifold/flowline system will connect the wellheads to the compressor station.

Workforce

Lodi Gas Storage will retain a construction contractor to install all the components of the project. The workforce estimates are as follows:

- Compressor and metering station construction: 40 maximum
- Pipeline construction: 35 maximum
- Well drilling and completion work: 15 maximum

Equipment and Material Staging Area

Three potential material and equipment staging areas have been identified for the proposed project. The sites are approximately 3 to 5 acres in size; they are located near Shiloh and Olsen Roads and adjacent to the proposed compressor station (see Figure 2-4b in Appendix A). These sites were chosen because they

are heavily disturbed and occur adjacent to major access points. The staging areas will contain laydown areas for equipment, pipes and other construction-related supplies, and a contractor trailer.

Access Roads

Construction and future maintenance access roads were previously described under each of the project components. Except for the metering station, Lodi Gas Storage is proposing to use existing paved, dirt, and two-track roads to provide access to the project components. These existing roads will be improved by minimal grading and gravelling to provide adequate access for heavy construction equipment and maintenance vehicles. The access roads will be approximately 20 feet wide. The existing access roads are shown in Figures 2-4a through 2-4c in Appendix A.

For the metering station, a short new access road (approximately 250 feet) will be constructed to connect the proposed station to the existing gravel road. The new roadway will be located immediately adjacent to the western fenceline of the Calpine facility and will be approximately 0.1 acre (250-foot length by 20-foot width) in size.

The flow line and pipeline will be accessed from existing roads (Shiloh, Olsen, and Birds Landing Roads). Construction access will be provided along the pipeline right-of-way. No additional access roads are anticipated for these pipelines.

Construction Equipment

Table 2-1 identifies the equipment that may be used to construct the proposed project.

Table 2-1. Equipment That May Be Used during Construction of the Proposed Project

Equipment	Potential Uses
Water trucks	Compaction, erosion, and dust control
Roller/compactor	Compaction of foundation areas
Backhoe	Excavation
Cranes	Lifting and setting equipment
Dump trucks	Hauling road and pad materials
Flatbed trucks	Hauling equipment
Pickup trucks	General use and hauling minor equipment
Small hydraulic cranes/forklifts	Loading and unloading equipment
Four-wheeled all-terrain vehicles	Personnel access to construction spreads
Rough-terrain forklift	Lifting equipment
Boring equipment	Horizontal boring
Sideboom	Laying pipeline
Dozer	Clearing and grading

Best Management Practices

As part of the proposed project, Lodi Gas Storage will implement a number of measures to avoid and minimize long-term effects on environmental resources within and adjacent to the proposed project facilities. Lodi Gas Storage will prepare a variety of plans before construction activities are initiated. These plans are described in this section and are referenced in the various impact analyses in Chapter 3.

Designate Work Zones

Lodi Gas Storage will identify work areas and will ensure that:

- Construction activities, equipment, and associated activities (e.g., staging areas) are confined to the designated work zone, and
- Areas supporting sensitive resources (e.g., nearby seasonal wetlands and special-status plant population) are avoided.

Construction equipment will be confined to a designated work zone (including access roads) in the project area. Before ground-disturbing activities are initiated, the work zone will be clearly staked and flagged.

Wetland areas and special-status species will be protected and avoided to the extent feasible as part of the proposed project. Where feasible, all adjacent waters and wetlands will be avoided and will be designated as exclusion zones during the preconstruction phase.

Construction Traffic Safety Measures

Lodi Gas Storage will prepare a Construction Traffic Plan to minimize short-term construction-related impacts on local traffic. These measures will include installation of temporary warning signs at appropriate locations along Birds Landing Road and Shiloh Road (and other roads if determined necessary). The signs will be placed at strategic locations near the site access location and will indicate "Construction Traffic Ahead," "Trucks Entering and Exiting 50 Feet Ahead," or an equivalent message. The signs will be removed after all construction-related activities are completed.

The construction traffic plan will include, but not be limited to, the following measures:

- Coordinate with the County on any lane or road closures, if needed to construct improvements.
- Install traffic control devices as specified in the California Department of Transportation's Manual of Traffic Control for Construction and Maintenance Works Zones.
- Provide alternative routes (detours), as necessary, to route local traffic around roadway construction.
- Provide notification of any road closures to residents in the vicinity of construction.
- Provide access to driveways, private roads, and farm roads outside the immediate construction zone.
- Consult with emergency service providers and develop an emergency access plan for emergency vehicle access in and adjacent to the construction zone.

Prepare an Injection Plan

The California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) is responsible for wells drilled into an underground gas storage facility. Lodi Gas Storage will complete engineering and geology studies and an injection plan and submit them to the division for approval. These studies will describe the well drilling and abandonment plans; reservoir characteristics; all geologic units, aquifers, and oil and gas zones; and the monitoring system to ensure that injected gas is confined to the intended zone. Lodi Gas Storage will be required to post a bond with DOGGR to ensure proper completion or abandonment of any well drilled.

Seismic-Resistant Design Measures

The project will be designed to meet the seismic safety standards of the Uniform Building Code. Specific design measures may include, but are not limited to, special foundation design, additional bracing and support of upright facilities (e.g., tanks, exhaust stacks), and weighting the pipeline in areas of potential liquefaction. In addition, automated leak detection, isolation, and shutdown controls will limit the secondary effects of equipment damage. Project facilities and foundations will be designed to withstand changes in soil density. When the detailed engineering design of the project is completed, it will be submitted to the DOT, Office of Pipeline Safety (which provides oversight of pipeline construction, operation, and safety) and the DOGGR (which provides oversight of design, installation, and operation of gas wells).

Air Quality Protection Measures

The following applicable measures will be implemented as part of the proposed project to minimize dust emissions and to be consistent with BAAQMD guidelines for reducing construction impacts to a less than significant level.

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
- Pave, apply water three times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles (e.g., dirt and sand).
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the site.
- Limit the area subject to excavation, grading, and other construction activity at any one time.

Lodi Gas Storage also commits to installing BACT to reduce emissions from the natural gas compressor units.

Lodi Gas Storage will provide the CPUC with evidence that it has complied with the requirements of the BAAQMD. This evidence shall be in the form of a final permit from the BAAQMD. The final permit will be provided to the CPUC prior to the beginning of construction of the compression facility.

Noise Control Measures

The following measures will be incorporated into the construction contract specifications to reduce and control noise generated from construction-related activities.

- Restrict construction within 1,000 feet of occupied dwelling units to daytime hours between 7 a.m. and 7 p.m. on weekdays, Saturdays, and non-holidays, unless written approval is obtained from the resident.
- Ensure that all construction equipment has sound-control devices no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.
- Implement appropriate additional noise-reducing measures, including but not limited to:
  - Changing the location of stationary construction equipment,
  - Shutting off idling equipment,
  - Rescheduling construction activity, and
  - Notifying nearby residents in advance of construction work.

Equipment Maintenance and Refueling Restrictions

The equipment used for the proposed project will require periodic maintenance and refueling. To reduce the potential of contamination by spills, no refueling, storage, servicing, or maintenance of equipment will be performed within 100 feet of sensitive environmental resources. No refueling or servicing will be done without absorbent material or drip pans underneath to contain spilled fuel. Any fluids drained from the machinery during servicing will be collected in leak-proof containers and taken to an appropriate disposal or recycling facility. If such activities result in spillage or accumulation of a product on the soil, the contaminated soil will be assessed and disposed of properly. Under no circumstances will contaminated soils be added to a spoils pile.

Mobile refueling trucks likely will be used for onsite refueling of construction equipment. The refueling trucks will be independently licensed and regulated to haul and dispense fuels, to ensure that the appropriate spill prevention techniques are implemented.

All maintenance materials (i.e., oils, grease, lubricants, antifreeze, and similar materials) will be stored at offsite staging areas. If these materials are required during field operations, they will be placed in a designated area away from site activities and sensitive resources.

During construction, all vehicles and equipment required on site will be parked or stored at least 100 feet from waterbodies, wetlands, known archaeological sites, and other sensitive resource areas. These areas will be identified on the construction drawings, as appropriate. All wash-down activities will be conducted at least 100 feet from sensitive environmental resources (e.g., seasonal wetlands and the seasonal drainage along Shiloh Road).

Hazardous Materials Measures

The following measures will be incorporated into the construction contract specifications to address hazardous materials generated from construction-related activities.

- Diesel fuel and petroleum-based lubricants will be stored only at designated staging areas.
- All hazardous material spills or threatened releases, including petroleum products such as gasoline, diesel, and hydraulic fluid—regardless of the quantity spilled—must be immediately reported if the spill has entered or threatens to enter a water of the State, or has caused injury to a person or threatens injury to public health.

Lodi Gas Storage will prepare a Hazardous Materials Contingency Plan that will be implemented if an accidental spill occurs or if any subsurface hazardous materials are encountered during construction. Provisions outlined in this plan will include phone numbers of county and state agencies and primary, secondary, and final cleanup procedures.

In addition, Lodi Gas Storage will require that the project contractor prepare a Health and Safety Plan (HSP) to ensure that no impacts will occur if hazardous soils or other materials are encountered during construction of the project. The HSP will include elements that establish worker training, engineering controls, and monitoring. The HSP also will establish security measures to prevent unauthorized entry to cleanup sites and to reduce hazards outside the investigation/cleanup area.

Fire Management Measures

The Montezuma Hills and Project Area are classified as a high grassfire risk area due to the dry, grassland environment and strong winds (Solano County 1977). Lodi Gas Storage recognizes the potential for increased fire risk during summer construction activities. For this reason, Lodi Gas Storage will develop fire management measures as part of their construction safety and emergency

response plan for use during construction and operation. The Plan would include notification procedures and emergency fire precautions, such as the following mitigation measures:

- All internal combustion engines, stationary and mobile, shall be equipped with spark arresters, meeting Agency standards.
- Spark arresters shall be in good working order.
- Light trucks and cars with factory-installed (type) mufflers, in good condition, may be used on roads where the roadway is cleared of all vegetation.
- Smoking signs and fire rules shall be posted on the project bulletin board at the Contractor's field office and areas visible to employees during the fire season.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.
- Installation of fire extinguishers at the compressor station and metering station.
- Employee training in use of extinguishers and communication with the Montezuma Hills Fire District.
- Periodic inspections by the Montezuma Hills Fire District.

It is expected that the implementation of this plan will sufficiently mitigate increased fire risk.

Paleontological Resources Measures

A paleontological resources discovery and management plan will be developed and implemented as part of the proposed project to avoid potential impacts on these resources. This plan will include review of final construction plans to determine which portions of the project will affect paleontologically sensitive sediments that lie deeper than 10 feet below the surface.

If potentially significant fossils (defined as deposits that are unique, or that may reasonably be expected to assist in the evaluation of specific areas of research or expand our understanding of prehistory) are encountered, the Lodi Gas Storage will initiate the following measures:

- Stop construction in the immediate vicinity of the fossil find until they are removed.
- Arrange for recovery of fossils by a qualified paleontologist and curation of scientifically prepared specimens in an accredited institution.

Aesthetics/Visual Resources Measures

The following measures will be implemented as part of the proposed project to minimize visual impacts of the project and be consistent with Solano County's general plan polices.

- Construction disturbances will be minimized to help reduce contrast between exposed soils and naturally vegetated and clearing of vegetation and trees at facilities sites will be minimized.
- Disturbed agricultural land will be replanted following pipeline construction (if requested by the landowner).
- Facilities will be painted with non-glare, earthtone colors to blend with the surrounding vegetation/landscape.
- Shielded, non-glare lighting will be used at facilities.

Site Reclamation Measures

Site reclamation is the final element of the proposed project. The short-term objectives of reclamation are to control accelerated erosion and sedimentation and to minimize impacts on adjacent waters, land uses, and other sensitive resources. Properly executed construction practices and timely progress will minimize impacts to environmental resources. Long-term reclamation objectives include erosion and sedimentation control, as well as reclamation of topography to preconstruction conditions. The reclamation effort will involve restoration of temporary access roads (where necessary), and installation of erosion control measures that comply with Solano County Public Works Department requirements.

Lodi Gas Storage will also prepare a SWPPP that describes when, where, and how the site reclamation BMPs will be implemented (see discussion of "Erosion and Sediment Control" below). The State Water Resources Control Board will review and approve this plan prior to construction.

Restoration of Pipeline Right-of-Way

Following installation of the pipeline, the right-of-way will be graded to preconstruction grades and contours and will be seeded with an appropriate seed mix. The seed mix will be composed of the appropriate mix of species and acceptable to the landowner.

Erosion and Sediment Control

Erosion is the process of soil particles being displaced and transported by wind or water. Construction of the proposed project would disturb soil and vegetation, exposing sites to possible erosion. Following is a summary of the BMPs that will

be undertaken in accordance with the California Code of Regulations and the measures that will be implemented by the contractor as specified in the SWPPP that will be prepared for the proposed project.

Erosion and sediment control measures are used to reduce the amount of soil that is displaced or transported from a land area and to control the discharge of soil particles that are displaced or transported. The following standard erosion and sediment control measures and practices will be used during and after construction to control accelerated soil erosion and sedimentation to a less-than-significant level:

- Minimize site disturbance.
- Perform initial cleanup.
- Compact subsurface backfill material.
- Install trench plugs.
- Apply an appropriate seed mix.

These measures are described below. These measures are routinely implemented in the construction industry and have been proven successful for projects involving similar surface and subsurface disturbance.

Minimize Site Disturbance. The most basic way to avoid erosion is to minimize site disturbance. To minimize site disturbance and ensure that impacts are avoided or reduced to less-than-significant levels, the construction contractor will be directed to:

- Remove only the vegetation that is absolutely necessary to remove,
- Avoid off-road vehicle use outside the work zone,
- Avoid excessive trips along the right-of-way or access or public roads, and
- Instruct all personnel on stormwater pollution prevention concepts to ensure that all are conscious of how their actions affect the potential for erosion and sedimentation.

Construction inspectors will be on site during all construction activities and will reinforce the importance of confining all vehicular traffic to the existing right-of-way and public access roads.

Perform Initial Cleanup. The contractor will be directed to perform initial site cleanup immediately following construction activities. Initial cleanup includes removing debris and spoils and restoring original contours. Initial cleanup conducted as part of the construction contributes significantly to overall site stability and facilitates final cleanup. The site will begin to stabilize naturally with little additional disturbance during final cleanup. A site that is not initially cleaned up is more susceptible to erosion.

Compact Subsurface Backfill Material. Proper compaction of subsurface soil serves as an erosion control measure. Uncompacted plow or trench furrows are susceptible to subsurface erosion through the migration of surface and subsurface water. Proper compaction of the subsurface material and plow furrows is necessary to help prevent surface and subsurface migration of water along the plow or trench furrow, and to prevent trench settlement.

Install Trench Plugs. A trench plug is a permanent mechanical erosion control measure consisting of soil-filled burlap bags placed in the excavated trench before backfilling. This also can be accomplished by substituting standard pipe backfill materials with a short length of impervious materials such as clay or slurry cement. Trench plugs serve to control erosion by arresting subsurface water flow. Trench plugs are placed in the trench at regular intervals along areas with steep slopes. The spacing is determined by slope grade, topography, and soil characteristics.

Apply an Appropriate Seed Mix. Seeding consists of sowing soil-stabilizing grasses on areas disturbed by construction activities—except cropland and areas surfaced with pavement or gravel. Vegetation serves to control both erosion and sedimentation. The root structure of the vegetation holds soil in place to resist erosion. Grasses slow the flow of surface water, allowing suspended particles to settle. All disturbed areas will be reseeded immediately after construction activities are completed. Reseeding will use species that are appropriate to the site and acceptable to the landowner.

Construction Schedule

Construction activities associated with project components generally will occur Monday through Saturday between 7:00 a.m. and 7:00 p.m. Pending the receipt of necessary project approvals, Lodi Gas Storage intends to begin construction in late Spring 2006 and complete construction in late Fall 2006. Construction of the metering station and approximately 7,500 linear feet of gas pipeline that occurs in the Yolo-Solano Air Quality Management District (Y-SAQMD) will be constructed sequentially rather than at the same time. This construction timing sequence will ensure that the total construction emissions will not exceed the Y-SAQMD's threshold.

The BMPs described above will be implemented throughout all construction phases.

Landowner Coordination and Easement Acquisition

Lodi Gas Storage has secured easement options from all private landowners for a construct right-of-way of 75 feet and a post-construction easement of 30 feet for the gas pipeline. As required by the CPUC, "a list of the names and mailing addresses of all owners of land over, under or on which the project, or any part of

the project, may be located, and owners of land adjacent thereto" is contained in Appendix B of this PEA.

Operation and Maintenance Program

Operation and maintenance of the proposed facility will be performed by the existing Lodi Gas Storage operations and maintenance personnel plus two additional staff. The storage facility will be manned during the daylight shift and remotely monitored and controlled at all times from the existing control room of the Lodi Gas Storage Facility control room.

As part of the future operation and maintenance program, aboveground piping components will be maintained to minimize leakage of odorized gas. The facility valves, flanges, and other piping components will be monitored for leaks by operations personnel as part of the day to day operation of the facility. In the event that a leak occurs, releasing odorized gas into the atmosphere, the leak will be repaired as soon as practical. In the event Lodi Gas Storage receives notification from a third party concerning the smell of odorant in the vicinity of the proposed facility, Lodi Gas Storage operations personnel will investigate the source of the odor, and repair any leaks contributing to the odor as soon as practical. A log of all third party notifications regarding gas odors will be kept. The date of the notification, the cause of the odor, and the date of the repair of any corresponding odorant leaks will be recorded in the log. A copy of the described log will be submitted to the CPUC quarterly.

Required Permits and Approvals

The CPUC will use this PEA as the basis for a CEQA document to disclose the proposed project's potential environmental impacts; to determine whether there is substantial evidence that the project would create significant environmental impacts; and—if such impacts are likely—whether they could be mitigated to less-than-significant levels. This document may be used by regulatory agencies responsible for issuing permits and approvals that may be needed to proceed with the project. These agencies are identified below.

Local Agencies

Lodi Gas Storage will obtain the following local agency approvals for the proposed project:

- Solano County Department of Building Inspection – building and electrical permits
- Solano County Department of Resource Management, Division of Building and Safety – grading permit

- Solano County Transportation Department – encroachment and transportation permits may be obtained for construction within the public right-of-way and for hauling any loads that exceed legal limits
- Solano County Department of Resource Management – Use Permit
- Solano County Department of Resource Management, Environmental Health Services Division, Technical Services Program – Water Well Permit
- Solano County Department of Resource Management – Marsh Development Permit
- Bay Area Air Quality Management District – Authority to Construct/Permit to Operate

State Agencies

Lodi Gas Storage will obtain the following state agency approvals for the proposed project:

- California Department of Conservation, Division of Oil, Gas and Geothermal Resources – Permit to Conduct Well Operations and Authorization to Inject Produced Water (if necessary)
- California Department of Conservation, Division of Oil, Gas and Geothermal Resources – Permit to Operate Kirby Hills Field as a Storage Field
- State Water Resources Control Board (SWRCB)—issue a National Pollutant Discharge Elimination System (NPDES) permit for construction activities and discharge of hydrotest water. This permit is required under Section 402 of the Clean Water Act

Federal Agencies

Lodi Gas Storage is proposing to avoid all potential waters of the United States and potential habitat for federally listed species. Therefore, no federal permits or authorizations under Section 404 and 401 of the Clean Water Act and Section 7 or 10 under the Federal Endangered Species Act are currently required for the proposed project.

However, Lodi Gas Storage will prepare an Operation and Maintenance Plan, Damage Prevention Plan, and Emergency Response Plan for pipeline construction, operation, and safety to support authorizations from the DOT.