PG&E Shepherd Substation Project

Draft Initial Study / Mitigated Negative Declaration

May 2012

Prepared for:

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

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PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE

SAN FRANCISCO, CA 94102-3298

MITIGATED NEGATIVE DECLARATION

SHEPHERD SUBSTATION PROJECT

Lead Agency: California Public Utilities Commission (CPUC)
Energy Division
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Contact: Michael Rosauer, Project Manager
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PROJECT INFORMATION

Project: Shepherd Substation Project
Fresno County, California

Proponent: Pacific Gas and Electric Company (PG&E)
77 Beale Street
San Francisco, California 94105
(800) 743-5000

DESCRIPTION OF PROJECT

The proposed project includes constructing a 115/21-kilovolt (kV) electrical substation, Shepherd Substation, with three- 45 megavolt amperes (MVA) transformers. A 115-kV overhead power line would be constructed to link the substation to the existing power grid. The power line would be approximately 1.5 miles long. Three distribution lines would also be constructed to link the substation to existing distribution systems in the area. The project is located in an unincorporated area of Fresno County, California.

REQUIRED APPROVALS

State and local permits would be required for construction work and actions required to construct the substation and associated power and distribution lines. Table 1 lists the potential permits and approvals necessary for completing the proposed project.

Table 1: Permits and Approval Potentially Required for the Proposed Project

Permit, Approval, or Exemption	Purpose	Regulatory Agency
Federal		
Section 10	Federally listed threatened and endangered species	U.S. Fish and Wildlife Service (USFWS)
State		
Permit to Construct (General Order No. 131-D)	Construction of substation and associated power line facilities	CPUC
National Pollutant Discharge Elimination System (NPDES) —General Construction Storm Water Permit	Permit required for all construction projects that disturb more than 1 acre	State Water Resources Control Board (SWRCB)
Section 2081	State listed threatened and endangered species	California Department of Fish and Game (CDFG)
Local		
Encroachment Permit	Ministerial permit to install station access road from public road right-of-way	Fresno County
Grading, and Building Permits	Ministerial permission to conduct welding, grading, and certain building activities	Fresno County
Dust Control Plan	Ministerial permission for construction involving fugitive dust emissions	San Joaquin Valley Air Quality Control Board (SJVAQCB)

ENVIRONMENTAL DETERMINATION

Based upon an Initial Study (IS), it is determined that the proposed project WOULD NOT HAVE a significant effect on the environment with the incorporation of the proposed applicant proposed measures (APMs), avoidance and minimization measures (AMMs), and mitigation measures. The IS is available for review at the CPUC, 505 Van Ness Avenue, San Francisco, California 94102.

_____ _____

Michael Rosauer* Date
Project Manager

*To be signed upon completion of the public review period, if appropriate.

APPLICANT PROPOSED MEASURES, AVOIDANCE AND MINIMIZATION MEASURES AND MITIGATION MEASURES

Pursuant to the Public Resource Code and the State California Environmental Quality Act (CEQA) Guidelines, the Lead Agency (CPUC) has prepared an IS for the proposed project to evaluate the project's potential effects on the environment. Potential impacts associated with project implementation have been identified in the IS. The project description included APMs, which would reduce potential impacts. The San Joaquin Valley Operation and Maintenance Habitat Conservation Plan includes avoidance and minimization measures that would be implemented with the proposed project. Mitigation measures would be implemented to reduce potentially significant impacts to less than significant levels.

Aesthetics

APM Visual-1: Construct a prefabricated concrete wall on the north and east sides of the substation and replanting as necessary to leave three rows of trees on the east and north sides of the substation to minimize contrast with the existing visual character of the area. As almond trees die, or are impacted by road widening along Sunnyside and Perrin Avenues, the trees will be replaced with compatible vegetation.

APM Visual-2: Security lighting will consist of sodium vapor lamps and all exterior lighting will use non-glare light bulbs, designed and positioned to minimize casting light and/or glare to off-site locations. Security lighting will be designed at the substation in a way such that all lighting is directed inwards. In addition, all exterior lighting will be hooded to reduce light pollution.

Mitigation Measure Aesthetics-1. The final color of the pre-fabricated concrete walls shall be chosen in consultation with the Fresno County.

Mitigation Measure Aesthetics-2. To reduce the contrast and presence of the substation and related facilities:

- Non-reflective finishes shall be used on fencing and all facilities taller than 8 feet.
- Entrance road solid gates shall be a natural wood color.

Mitigation Measure Aesthetics-3. To reduce the contrast and presence of the power line and circuits, PG&E shall use non-specular conductors and galvanized steel TSPs.

Air Quality

APM Air-1: All disturbed areas that are not being actively used for construction purposes will be stabilized of dust emissions using water or covered with a tarp or other suitable covering.

APM Air-2: All unpaved roads utilized for accessing the project will be stabilized by spraying with water.

APM Air-3: All ground-disturbing activities will be effectively controlled of fugitive dust emissions by application of water or by presoaking.

APM Air-4: When materials are transported off site, all material will be covered or wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained.

APM Air-5: All operations will remove the accumulation of mud or dirt from adjacent public streets at the end of each workday.

APM Air-6: Trackout (i.e., dirt and mud transported on vehicle tires and transferred to the pavement upon existing the work area) will be removed at the end of each workday when it extends 50 or more feet from the site.

APM Air-7: Speeds of vehicles and equipment operating on unpaved surfaces will be limited to no more than 15 miles per hour, and as required in the project dust control permit.

APM Air-8: Dust suppressants or watering will be used to ensure that dust is controlled to less than 20 percent opacity when winds exceed 20 miles per hour.

Mitigation Measure Air-1: All disturbed surface areas over 1,000 square feet must achieve final stabilization upon the completion of project construction. Final stabilization would be achieved through appropriate means that would provide long-term sediment and dust control. PG&E will be responsible for monitoring and maintaining all disturbed areas until final stabilization is achieved.

Greenhouse Gases

APM GHG-1/Noise-5: When not performing construction, operation, or maintenance activities, vehicles will be shut off rather than left idling unnecessarily. Some equipment or vehicles may require extended start-up times. For such equipment, a common sense approach will be used to determine idling times. Normal idling will not exceed five minutes, as required by California law.

APM GHG-2: Diesel fueled off-road construction equipment with 50 horsepower or greater engines shall at a minimum meet U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) Tier 1 engine standards. Compliance records will be kept by the general construction contractor. This APM is not applicable to equipment permitted by the local air quality district or certified through CARB's Statewide Portable Equipment Registration Program, or single specialized equipment that will be used for less than five total days.

APM GHG-3: PG&E will incorporate the following measures into its construction plans to further reduce greenhouse gas emissions:

- Encourage construction workers to carpool by establishing carpooling to construction sites where feasible to do so.
- Encourage recycling of construction waste.

- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.

APM GHG-4: PG&E will continue to be an active member of the SF_6 Emission Reduction Partnership, which focuses on reducing emissions of sulfur hexafluoride (SF_6) from transmission and distribution sources. PG&E will also continue to institute new rules for more accurately monitoring its equipment for SF_6 leaks and immediately repairing leaks that are discovered. PG&E will ensure that all breakers purchased for this project will have a manufacturer's guaranteed SF_6 leakage rate of 0.5 percent per year or less.

Biological Resources

APM Bio-2: To prevent the spread of noxious weeds, only equipment which has been washed and is free of caked on mud, dirt, and other debris which could house plant seeds will be allowed in the project area.

APM Bio-6: In accordance with, and in addition to the training requirements in AMM 1 of the PG&E San Joaquin Valley Habitat Conservation Plan (HCP), worker environmental awareness training will be conducted prior to initiating project construction activities and throughout the duration of construction, such that all new site workers have received training. Worker training will detail sensitive species of the project area and those conservation measures which have been identified to minimize impacts to them. In addition, workers will be informed about the presence, life history, and habitat of these species. Training will also include information on federal and state laws protecting migratory birds. Documentation of worker training will be available on-site.

APM Bio-7: In accordance with the monitoring requirements in AMMs 15 and 17 of the HCP, a biological monitor will be onsite during ground disturbing activities with the potential to disturb habitat near flagged exclusion and restricted activity zones in order to minimize impacts to salamanders. Before the start of work each morning, the biological monitor will check under all equipment and stored supplies left in the work area overnight within 600 feet of suitable habitat for listed species with a potential to occur in the area. The monitor will have the authority to stop work or determine alternative work practices in consultation with agencies and construction personnel, as appropriate, if construction activities are likely to impact sensitive biological resources. The biological monitor will document monitoring activities in a daily log summarizing construction activities and environmental compliance.

APM Bio-8: All work will be done in a manner that minimizes disturbance to wildlife and habitat.

APM Bio-9: All food waste and associated containers will be disposed of in closed lid containers.

APM Bio-11: Proper spill prevention and cleanup equipment shall be readily available.

APM Bio-12: Where work on pavement, existing roads, and existing disturbed areas is not practicable, worker vehicles and construction equipment shall remain on identified access routes and designated areas for construction. If additional areas are required, a biologist will survey the new area, identify any sensitive biological resource, and flag that resource for avoidance.

APM Bio-13: No pets or firearms are permitted within the project area.

APM Bio-14: Sensitive areas will be clearly flagged or marked. Sensitive areas will be avoided during construction unless the necessary agency permits and/or approvals have been obtained.

APM Bio-18: All pole holes will be backfilled or covered at the end of the work day by a method that would restrict any wildlife from entering the hole from the surface, and to prevent human injury.

APM Bio-19: PG&E will consider the location of seasonal wetlands in the design of the power line. No power line poles will be placed in seasonal wetlands. Prior to construction the perimeter of the seasonal wetland near project construction will be flagged for avoidance.

APM Bio-20: Suitable habitat areas (i.e., seasonal wetlands, ponds, and canals) within the project area will be identified during preconstruction surveys. These areas will be mapped and clearly marked in the field, and will be avoided during construction.

APM Bio-22: Additional conservation measures and/or mitigation recommended by the USFWS and CDFG through consultation for the California tiger salamander will be incorporated into the project. Any APMs that conflict with permits issued by the USFWS and/or CDFG will be superseded by those resource agency permit requirements.

APM Bio-24: Avian Power Line Interaction Committee Guidelines in accordance with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006[1] will be incorporated into the power line design to minimize the likelihood of avian electrocutions.

APM Bio-25: To the extent that the terms of these APMs conflict with subsequently negotiated terms and conditions of any state and/or federal environmental permit, the subsequent permit conditions will supersede the terms of these APMs.

AMM 1: Employees and contractors performing O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.

[1] 1. Avian Power Line Interaction Committee. 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C., and Sacramento, California.

AMM 2: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

AMM 3: The development of new access and ROW roads by PG&E will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

AMM 4: Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.

AMM 5: Trash dumping, firearms, open fires (such as barbecues) not required by the O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.

AMM 6: No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

AMM 7: During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone [RCZ]), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.

AMM 9: Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.

AMM 10: If an activity disturbs more than 0.25 acre in a grassland, and the landowner approves or it is within PG&E rights and standard practices, the area should be returned to pre-existing conditions and broadcast-seeded using a commercial seed mix. Seed mixtures/straw used for erosion control on projects of all sizes within grasslands will be certified weed-free. PG&E shall not broadcast (or apply in other manner) any commercial seed or seed-mix to disturbance sites within other natural land-cover types, within any vernal pool community, or within occupied habitat for any plant covered species.

AMM 12: If a covered plant species is present, a qualified biologist will stake and flag exclusion zones of 100 feet around plant occupied habitat (both the standing individuals and the seed bank individuals) of the covered species prior to O&M activities[2]. (Note: AMM 11 addresses elderberry plants and valley elderberry longhorn beetle.)

[2] If an exclusion zone cannot extend the specified distance from the habitat, the biologist will stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels). Measures are practicable where physically possible and not conflicting with other regulatory obligations or safety considerations; O&M activities will be prohibited or greatly restricted within restricted activity zones. However, vehicle operation on

AMM 13: If a covered annual plant species is present, O&M activities will occur after plant senescence and prior to the first significant rain to the extent practicable.

AMM 14: If a covered plant species is present, the upper 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards. (This measure will be used as an AMM for narrow endemic plants only after approval by USFWS and DFG during the Confer Process.)

AMM 15: If vernal pools are present, a qualified biologist will stake and flag an exclusion zone prior to O&M activities. The exclusion zone will encompass 250 feet[2]. Work will be avoided after the first significant rain until June 1, or until pools remain dry for 72 hours.

AMM 17: If suitable habitat for covered amphibians and reptiles is present and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to O&M activities involving excavation. If necessary, barrier fencing will be constructed around the work site to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an exclusion zone of 50 feet around the potentially occupied habitat[2]. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt-nosed leopard lizard and limestone salamander) are moved to nearby suitable habitat.

AMM 18: If western burrowing owls are present at the site, a qualified biologist will work with O&M staff to determine whether an exclusion zone of 160 feet during the non-nesting season and 250 feet during the nesting season can be established. If it cannot, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.

AMM 21: If San Joaquin kit fox dens are present, their disturbance and destruction will be avoided where possible. However, if dens are located within the proposed work area and cannot be avoided during construction, qualified biologists will determine if the dens are occupied. If unoccupied, the qualified biologist will remove these dens by hand excavating them in accordance with USFWS procedures (U.S. Fish and Wildlife Service 1999). Exclusion zones will be implemented following USFWS procedures (U.S. Fish and Wildlife Service 1999) or the latest USFWS procedures. The radius of these zones will follow current standards or will be as follows: Potential Den—50 feet; Known Den—100 feet; Natal or

existing roads and foot travel will be permitted. A qualified biologist will monitor O&M activities near flagged exclusion and restricted activity zones. Within 60 days after O&M activities have been completed at a given worksite, all staking and flagging will be removed.

Pupping Den—to be determined on a case-by-case basis in coordination with USFWS and DFG. Pipes will be capped and exit ramps will also be installed in these areas to avoid direct mortality.

AMM 22: All vegetation management activities will implement the nest protection program to avoid and minimize effects on Swainson's hawk, white-tailed kite, golden eagle, bald eagle, and other nesting birds. Additionally, trained pre-inspectors will use current data from DFG and CNDDB and professional judgment to determine whether active Swainson's hawk, golden eagle, or bald eagle nests are located near proposed work. If pre-inspectors identify an active nest near a proposed work area, they will prescribe measures to avoid nest abandonment and other adverse effects to these species, including working the line another time of year, maintaining a 500-foot setback, or if the line is in need of emergency pruning, contacting the HCP Administrator.

AMM 29: No herbicide will be applied within 100 feet of exclusion zones, except when applied to cut stumps or frilled stems or injected into stems.

AMM 30: Trees being felled in the vicinity of an exclusion zone will be directionally felled away from the zone, where possible. If this is not feasible, the tree will be removed in sections.

Mitigation Measure Biology-1: PG&E shall conduct a pre-activity survey of those portions of the project that occur within native or naturalized areas (the project route from Perrin Avenue to Shepherd Avenue). The survey should be conducted during the appropriate flowering season to identify sensitive plants that have the potential to occur within the project area. The width of the pre-activity survey will be 200 feet on the westerly side of the new power line and to the extent of PG&E's right-of-way on the easterly side. The survey will consist of walking parallel transects spaced approximately 50 feet apart to provide 100 percent visual coverage of the construction site and adjacent lands. The surveyors will map the location of all sensitive plants identified during the survey on drawings of the project site, noting the distance to construction areas, access roads, and laydown areas. If sensitive plant species are present, AMM-12, AMM-13, and AMM-14, shall be implemented.

Mitigation Measure Biology-2: A pre-activity survey for Molestan blister beetle shall be conducted by a qualified biologist within 30 days prior to the start of ground-disturbing construction activities. The width of the pre-activity survey will be to the extent of the power line easement and predetermined access routes that may fall outside of the easement area within suitable habitat (grasslands). If Molestan blister beetles are encountered, the biologist shall flag an exclusion zone of 25 feet around the potentially occupied habitat. If a smaller exclusion zone is required, the exclusion zone diameter will be determined by the project biologist based on field conditions and construction activities. The exclusion zone shall be subject to review by CPUC.

Mitigation Measure Biology-3: Within 30 days of construction, a qualified biologist shall conduct a pre-activity survey within the suitable habitat for burrowing owl to determine this species' presence or absence. The width of the pre-activity survey will be 500 feet on the

westerly side of the new power line, and to the extent of PG&E's right-of-way on the easterly side. The survey will consist of walking parallel transects spaced approximately 100 feet apart to provide 100 percent visual coverage of the construction site and adjacent lands. If western burrowing owls are present at the site, AMM-18 shall be implemented.

Mitigation Measure Biology-4 (proposed to supersede APM Bio-23): If construction activities are scheduled to occur during the avian breeding season (February 28 to August 31), a preconstruction survey for migratory birds shall be conducted by a qualified biologist within 30 days prior to the start of ground-disturbing construction activities. The width of the pre-activity survey for raptor nests will be in vegetation within 500 feet on the westerly side of the new power line alignment and up to 500 feet on the easterly side of the alignment, where access is available. At a minimum, the survey will be to the extent of PG&E's right-of-way on the easterly side. For smaller avian species, the maximum width of the survey will be in vegetation 250 feet on the westerly side of the new power line alignment and up to 250 feet on the easterly side of the alignment where access is available. At a minimum, the survey will be to the extent of PG&E's right-of-way on the easterly side. The results of the survey shall be reported to the CPUC prior to construction. If active nests are found, appropriate buffers between construction activities and the nest will be established to ensure nests are not abandoned due to project activities. The buffers shall be 50 feet for passerines and 250 feet for raptors. Work within the buffers shall not proceed until the nestlings have fledged or the nest becomes inactive, unless otherwise agreed to by the resource agency with jurisdiction over the species.

Mitigation Measure Biology-5: A preconstruction survey shall be conducted within 30 days of construction to determine the presence or absence of SJKF. This survey shall be conducted within suitable habitat and entail inspection of all burrows within 250 feet of the project site or to the extent of PG&E's right-of-way. If potential dens are detected, these dens shall be monitored using tracking medium and/or remote cameras for three nights to determine if SJKF inhabit them. If SJKF are found to be absent from the site the project can move forward with no further consideration of this species. If SJKF are found inhabiting the site or surrounding lands during the survey the measures identified in AMM 21 shall be implemented.

Mitigation Measure Biology-6: A survey for active dens of American badgers shall be performed by a qualified biologist within 30 days prior to construction grading or land clearing. Surveys shall be conducted within suitable habitat. The width of the pre-activity survey will be 250 feet on either side of the construction area or to the extent of PG&E's right-of-way. Construction may proceed once it is determined that there are no active dens in the survey area. If active dens are present, the dens shall be avoided during the breeding season and a 50-foot buffer around the den sites shall be established. Smaller buffers may be established through consultation with CDFG.

Cultural Resources

APM Cult-2: If the applicant revises the location of proposed facilities and ground-disturbing activities that affect areas beyond those surveyed for the PEA, those areas will be subjected to a cultural resources inventory to ensure that any newly identified sites are avoided by ground-disturbing activities.

APM Cult-3: The applicant will minimize or avoid impacts to any potentially significant prehistoric and historic resources that might be discovered during construction by implementing standard protocols that include ceasing all work within 50 feet of the discovery, protecting the discovery from further impacts, and immediately contacting a PG&E Cultural Resources Specialist.

APM Cult-4: If human remains are discovered, work in the immediate vicinity will stop immediately and a PG&E Cultural Resources Specialist will be contacted. The location of the discovery will be secured to prevent further impacts and the location will be kept confidential. The Cultural Resources Specialist will evaluate the discovery and will contact the Fresno County Coroner upon verifying that the remains are human. If the coroner determines the remains are Native American, the Native American Heritage Commission (NAHC) shall be contacted and the remains will be left in situ and protected until a decision is made on their final disposition.

Mitigation Measure Cultural-1 (proposed to supersede APMs Cult-1 and Pal-1): A qualified Cultural Resources Specialist shall design and implement a Cultural Resources Awareness Program that shall be provided to all project personnel who may encounter unique archaeological properties, historical resources, or paleontological resources, including construction supervisors and field personnel. No construction worker shall be involved in field operations without having participated in the Cultural Resources Awareness Program. The Cultural Resources Awareness Program shall include, at a minimum:

- A review of archaeology, history, prehistory, and Native American cultures associated with historical resources in California.
- A review of photographs and figures of potential historical resources and unique archaeological properties in California.
- A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to cultural resource preservation.
- A discussion of procedures to be followed in the event that unanticipated paleontological or cultural resources are discovered during implementation of the project.
- A discussion of disciplinary and other actions that could be taken against persons violating historical preservation laws and PG&E policies.
- PG&E will require all workers to comply with the Worker Environmental Awareness Program, PG&E policies, and other applicable laws and regulations as part of their contracts.

- Environmental training shall also be provided to workers regarding the protection of paleontological resources and procedures to be implemented in the event fossil remains are encountered during ground-disturbing activities.

The Cultural Resources Awareness Program may be conducted in concert with other environmental or safety awareness and education programs for the project. Cultural Resources Awareness Program training materials and/or presentations shall be submitted to CPUC for review and approval prior to the start of training sessions and at least 30 days prior to the start of construction.

Mitigation Measure Cultural-2: Prior to construction, a certified paleontologist shall be retained by PG&E to supervise construction excavations and to produce a Paleontological Resource Management Plan (PRMP) for the proposed project. The PRMP shall be prepared and implemented under the direction of the paleontologist, and shall be submitted to CPUC for review and approval at least 30 days prior to construction. Construction activities that require excavation or augering of 5 feet in diameter or greater at depths greater than 5 feet shall be monitored on a part-time or full-time basis by a paleontological construction monitor only in those parts of the project area where these activities will disturb previously undisturbed strata in the Riverbank Formation rock unit. Should monitoring reveal paleontological resources of interest during visual inspection of the exposed rock unit, CPUC shall be immediately notified, and microscopic examination of matrix samples shall be conducted to determine if fossils are present.

Mitigation Measure Cultural-3 (proposed to supersede APM Pal-1): In the unlikely event that previously unidentified paleontological resources are uncovered during implementation of the project, CPUC shall be notified immediately and all ground-disturbing work shall be temporarily halted or diverted away from the discovery to another location. PG&E's paleontological resources specialist or his/her designated representative shall inspect the discovery and determine whether further investigation is required. If the discovery is significant, but can be avoided and no further impacts would occur, the resource shall be documented in the appropriate paleontological resource records and no further effort shall be required. If the resource is significant, but cannot be avoided and may be subject to further impact, PG&E shall evaluate the significance of the resources and implement data recovery excavation or other appropriate treatment measures, as approved by the landowner if on third-party property and as verified by CPUC.

These measures may include a report prepared in accordance with PG&E, Society of Vertebrate Paleontology guidelines, and CPUC requirements, and/or curation at a recognized museum repository.

Geology and Soils

APM Geo-1/WQ-1: Erosion and Sediment Control Plan (ESCP) implementation. An ESCP will be prepared in association with the Stormwater Pollution Prevention Plan (SWPPP). This plan will be prepared in accordance with the Water Board guidelines and other

applicable best management practices (BMPs). Implementation of the plan will help stabilize disturbed areas and waterways and will reduce erosion and sedimentation. The plan will designate BMPs that will be followed during construction activities. Erosion-minimizing efforts may include, but are not limited to, measures such as:

1. Avoiding excessive disturbance of steep slopes.
2. Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas.
3. Strictly controlling vehicular traffic.
4. Implementing a dust-control program during construction.
5. Restricting access to sensitive areas.
6. Using vehicle mats in wet areas.
7. Revegetating disturbed areas, where applicable, following construction. In areas where soils are to be temporarily stockpiled, soils will be placed in a controlled area and will be managed with similar erosion control techniques. Where construction activities occur near a surface water body or drainage channel and drainage from these areas flows towards a water body or wetland, stockpiles will be placed at least 100 feet from the water body or will be properly contained (such as berming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures will be used to protect exposed areas during and after construction activities. Erosion-control measures will be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, will remain in place until disturbed areas have stabilized.
8. The SWPPP will be designed specifically for the hydrologic setting of the project. BMPs documented in the ESCP may also be included in the SWPPP.

Hazards and Hazardous Materials

APM Haz-1: Emergency spill response and cleanup kits will be available on site and readily available for the cleanup of any accidental spill. Construction crews will be trained in safe handling and cleanup responsibilities prior to the initiation of construction.

APM Haz-2: In the event of an accidental spill, the substation is equipped with a retention basin that meets SPCC Guidelines (40 CFR 112). The SPCC basin will be sufficiently sized to accommodate the accidental spill of all mineral oil from the largest transformer located at the substation. The substation will also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Containment will be constructed around and under the battery racks with neutralizing pads.

APM Haz-3: A water truck will be available on site during dry conditions, as assessed by the construction foreman, to prevent the ignition or spread of a wildfire. The work site will be sprayed a minimum of three times per day during dry conditions.

Mitigation Measure Hazards-1: PG&E will submit a Site Safety Plan to the CPUC at least 30 days prior to project construction. The plan will identify ways to minimize the exposure of the public to potentially hazardous materials during all phases of project construction through operation and maintenance. The plan will require appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. All hazardous materials and hazardous wastes will be handled, stored, and disposed of by personnel qualified to handle hazardous materials and in accordance with all applicable regulations. If it is necessary to store any chemicals on-site, they will be managed in accordance with all applicable regulations. Materials Safety Data Sheets will be maintained and kept available on-site, as applicable.

Mitigation Measure Hazards-2: An Environmental Training and Monitoring Program (ETMP) shall be established to communicate any environmental concerns to all field personnel, in addition to appropriate work practices, including:

- Spill prevention and response measures (including BMPs),
- Site-specific physical conditions to improve hazard prevention (e.g., identification of flow paths to nearest water bodies),
- Review of all site-specific plans, including, but not limited to, the project's SWPPP and Site Safety Plan.

A copy of the ETMP shall be submitted to the CPUC at least 30 days prior to construction. Training records shall be kept on site and submitted to the CPUC upon request. A PG&E representative shall be designated to ensure that the plans are followed throughout the construction period.

BMPs identified in the project SWPPP shall be implemented during project construction to minimize the risk of an accidental release of hazardous materials and to provide the necessary information for emergency response.

Mitigation Measure Hazards-3: PG&E will coordinate with local emergency personnel in the event that project activities may impact an access point or route during an emergency. PG&E will notify local law enforcement and fire protection services before beginning construction activities that require road closures so that the project will not result in inadequate emergency access.

Mitigation Measure Hazards-4: Smoking will not be permitted during fire season, except in a barren area that is paved or cleared to bare soil at least 10 feet in diameter, or within vehicles and enclosed equipment cabs. Under no circumstances will smoking be permitted during fire season while employees are operating light or heavy equipment, or while walking or working in grasslands.

Hydrology and Water Quality

APM WQ-2: PG&E will avoid working within seasonal wetlands, ponds, or other water bodies. No poles will be placed within seasonal wetlands. The limits of seasonal wetlands adjacent to the work areas will be flagged in the field for avoidance. Underground canal and creek crossings will be drilled or bored underneath the water body.

APM WQ-3: PG&E will engineer a permanent infiltration basin within the substation perimeter to capture on-site stormwater, clean it of potential pollutants, and infiltrate it into the local groundwater table. Sizing and design of the facility will follow industry best practices, including Fresno County and California Stormwater General Permit guidelines.

Mitigation Measure Hydrology-1: PG&E will be responsible for contacting property owners to help in identifying underground waterlines prior to construction. PG&E will design construction activities to avoid impacts to a known waterline to the extent that sufficient information is available to identify the precise location of the line. Should PG&E cause damage to an irrigation ditch or waterline during construction, PG&E will be responsible for contacting the owner to shut off the water supply, repairing the water line or irrigation ditch, and containing released water to the extent feasible.

Mitigation Measure Hydrology-2: In the case of a leak or other damage to the irrigation system utilized for the almond trees on the proposed substation site, PG&E will be responsible for repairing the irrigation system and employing BMPs as necessary to contain water released from the irrigation system.

Mitigation Measure Hydrology-3: Workers will not conduct construction activities in flooded areas during area flooding except as necessary to help alleviate the flooding or address emergency safety issues at the project site. Should flooding of the proposed substation or project area result in damage to substation structures or power poles, non-emergency repairs to these structures and/or pole replacement as necessary would be conducted when floodwaters subside and the area is safe for worker access. PG&E will inform CPUC of any flood damage to the project site that could change or require changes to the proposed project or affect the construction schedule.

Land Use and Planning

Mitigation Measure Land Use-1: PG&E will notify property owners within 300 feet of the project area at least 30 days prior to construction to alert them of project activities.

Noise

APM Noise-1: Construction will not occur before 6:00 a.m. or after 9:00 p.m. on any day except Saturday or Sunday, when construction will not occur before 7:00 a.m. or after 5:00 p.m. Work will only be conducted outside of these hours as required for project safety or to take advantage of the limited times when the power line can be taken out of service.

APM Noise-3: Where feasible, construction traffic will be routed to avoid sensitive noise receptors such as residences, schools, religious facilities, hospitals, and parks.

APM Noise-4: Stationary equipment used during construction will be located as far as practical from sensitive noise receptors.

APM Noise-6: Where feasible, equipment will be used that is specifically designed for low noise emissions and equipment powered by electric or natural gas as opposed to diesel or gasoline.

APM Noise-7: Residents in areas of heavy construction noise will be notified prior to commencing construction activities. Notification should include written notice and the posting of signs in appropriate locations with a contact number that residents can call with questions and concerns.

Transportation and Traffic

APM Tran-1: Deliveries will be made during normal construction hours.

APM Tran-2: PG&E shall prepare and implement a Traffic Management Plan or plans as required by, and in accordance with County requirements. The plan or plans shall be submitted to the CPUC when submitted to the County, and shall be distributed to all construction supervisors prior to commencement of construction activities.

FINDINGS

The IS was prepared to identify the potential impacts on the environment from the construction of the Shepherd Substation, power line, and distribution lines, and to evaluate the significance of these impacts. Based on the IS and the Findings listed below, the Lead Agency (CPUC) has determined that the proposed project would not have a significant effect on the environment.

- With the implementation of the above APMs, AMMs and mitigation measures, the proposed project would not significantly degrade the quality of the environment.
- With the implementation of the above mitigation measures, both short-term and long-term environmental impacts associated with the proposed project would be less than significant.
- When potential impacts associated with implementing the proposed project are considered cumulatively, the incremental contribution of the project-related impacts is insignificant.
- Based on the IS, there is no evidence that implementing the proposed project would have significant impacts on people.

Mary Jo Borak, Program and Project Supervisor* Date
Energy Division
California Public Utilities Commission

*To be signed upon completion of the public review period, if appropriate.

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INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

1. PROJECT TITLE

Shepherd Substation Project
Pacific Gas and Electric Company (PG&E) Application No. A.10-12-003

2. LEAD AGENCY NAME AND ADDRESS

California Public Utilities Commission (CPUC)
Energy Division
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

3. CONTACT PERSON AND PHONE NUMBER

Michael Rosauer, Project Manager
Energy Division
Phone: (415) 703-2579
E-mail: Michael.Rosauer @cpuc.ca.gov

4. PROJECT LOCATION

The project is located in unincorporated Fresno County, California, north of the City of Clovis. The proposed substation would be located at the southwest corner of Sunnyside Avenue and Perrin Avenue in Fresno County. The proposed power line interconnection would be approximately 1.5 miles in length extending from the north side of the substation to E. Copper Avenue to interconnect with the existing Kerckhoff-Clovis-Sanger #1 115-kV Power Line. The three proposed distribution alignments will extend south from the substation along Sunnyside Avenue. At Shepherd Avenue two distribution lines would extend east and west along Shepherd Avenue and one would extend south along Sunnyside Avenue to Nees Avenue.

5. PROJECT SPONSOR'S NAME AND ADDRESS

Pacific Gas and Electric Company
77 Beale Street
San Francisco, California 94105

6. GENERAL PLAN DESIGNATION

The entire project area is located on land classified as agricultural lands by the Fresno County General Plan.

7. ZONING

The Fresno County zoning designations for the project area include Exclusive Agricultural District (AE) and Rural Residential lands.

8. DESCRIPTION OF THE PROJECT

The proposed project includes constructing a 115/21-kV electrical substation, Shepherd Substation, with three- 45 MVA transformers at full build out. A 115-kV overhead power line interconnection would be constructed as part of the project to link the substation to the existing power grid. The power line would be approximately 1.5 miles long and over half of the new power line would occur within an existing distribution line ROW. One 12-kV and two 21-kV distribution lines would be constructed south of the substation as a part of the proposed project.

9. SURROUNDING LAND USES AND SETTING

The substation would be located on land that is currently used for agriculture. The southern end of the power line would be located within existing PG&E ROW. The northern end of the power line, the remaining 0.5 mile, would be located in new PG&E ROW. The three distribution lines would be located within Fresno County road ROW. Existing land uses along the power line include undeveloped areas, the Fresno Metropolitan Flood Control District water basins, low density residents, and agricultural.

10. OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED

PG&E may be required to obtain the permits listed in Table-1 of the Mitigated Negative Declaration (MND).

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural Resources	☐ Air Quality
☐ Greenhouse Gases	☐ Biological Resources	☐ Cultural Resources
☐ Geology and Soils	☐ Hazards and Hazardous Materials	☐ Hydrology and Water Quality
☐ Land Use	☐ Mineral Resources	☐ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☐ Transportation and Traffic	☐ Utilities and Service Systems	☐ Mandatory Findings of Significance

ENVIRONMENTAL DETERMINATION

On the basis of this initial evaluation: I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	☐
I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.	☒
I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.	☐
I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant impact unless mitigated" on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An EIR is required, but it must analyze only the effects that remain to be addressed.	☐
I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.	☐

_____ _____

Michael Rosauer, Project Manager — Date
Energy Division
California Public Utilities Commission

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LIST OF ACRONYMS

AB	Assembly Bill
AE	Exclusive Agricultural District
AES	Analytical Environmental Services
AMM	Avoidance and Minimization Measures
A-P Act	Alquist-Priolo Earthquake Fault Zoning Act
APMs	applicant proposed measures
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BMPs	Best Management Practices
BP	before present
CAAQS	California Ambient Air Quality Standard
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
CalFire	California Department of Forestry and Fire Protection
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCMC	Clovis Community Medical Center
CDC	California Department of Conservation
CDF	California Department of Forestry
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CDOF	California Department of Finance
CDMG	California Department of Mines and Geology
CDWR	California Department of Water Resources
CEE	Customer Energy Efficiency
CESA	California Endangered Species Act

CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRHR	California Register of Historical Resources
CPUC	California Public Utilities Commission
CTS	California tiger salamander
CWA	Clean Water Act
CWC	California Water Code
dB	decibel
dBA	A-weighted decibel
DPA	Distribution Planning Area
DPS	distinct population segment
DWQ	Department of Water Quality
DTSC	Department of Toxic Substances Control
ECSTP	Erosion Control and Sediment Transport Plan
EIR	Environmental Impact Report
EMF	electric and magnetic field
EMFAC	Emission Factors
EO S-3-05	Executive Order S-3-05
EPA	U.S. Environmental Protection Agency

ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
ESU	Evolutionary Significant Unit
ETMP	Environmental Training and Monitoring Program
FAA	Federal Aviation Administration
FCFPD	Fresno County Fire Protection District
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
frac-out	fracturing-out
FSZ	Farmland Security Zone
g	gravity
GHG	greenhouse gas
GIS	Geographic Information Systems
GO	General Order
H_2S	hydrogen sulfide
HAPs	hazardous air pollutants
HCP	Habitat Conservation Plan
HDD	horizontal directional drilling
HWCL	Hazardous Waste and Control Law
IESNA	Illuminating Engineering Society of North America
in/sec	inch per second
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
KOP	key observations point
kV	kilovolt
LAFCO	Local Agency Formation Commission
L_{dn}	day-night sound level
L_{eq}	equivalent sound level

L_{max}	maximum noise level
LOP	limited operating period
LOS	levels of service
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Levels
MEER	Mechanical and Electrical Equipment Room
MND	Mitigated Negative Declaration
mph	miles per hour
MRZ	Mineral Resource Zone
MSL	mean sea level
MTCO2e/yr	metric tons of CO_2 equivalent per year
MVA	megavolt amperes
MW	megawatt
NAHC	Native American Heritage Commission
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_2	Nitrogen dioxide
NO_X	mono-nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NPDWR	National Primary Drinking Water Regulations
NRCS	Natural Resources Conservation Service
NSDWR	National Secondary Drinking Water Regulations
O&M	operations and maintenance
O_3	ozone

OHWM	ordinary high water mark
OMR	Office of Mine Reclamation
PEA	Proponent's Environmental Assessment
PGA	peak ground acceleration
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	particulate less than 2.5 micrometers in aerodynamic diameter
PM_{10}	particulate matter 10 micrometers or less
PRMP	Paleontological Resource Management Plan
PTC	Permit to Construct
R&T Park	Research and Technology Park
RCZ	raptor concentration zone
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
Sa	spectral acceleration
SB	Senate Bill
SF_6	sulfer hexaflouride
SFHA	Special Flood Hazard Area
SHPO	California State Historic Preservation Office
SIPs	State Implementation Plans
SJKF	San Joaquin kit fox
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control Board
SMARA	California Surface Mining and Reclamation Act of 1975
SMGB	State Mining and Geology Board
SO_2	sulfer dioxide
SO_X	mono-sulfur oxides
SPAL	Small Project Analysis Level
SPCC	Spill Prevention Control Countermeasure
SR	State Route

SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TSP	tubular steel pole
U.S.	United States
U.S.C	U.S. Code
USACE	U.S. Army Corps of Engineers
USBOR	U.S. Bureau of Reclamation
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
v/c	traffic volume-to-road capacity
VOCs	volatile organic compounds

1 INTRODUCTION

1.1 PROPOSED PROJECT OVERVIEW

Pacific Gas and Electric Company (PG&E), a regulated California utility, filed an application with the California Public Utilities Commission (CPUC) on December 8, 2010, for a Permit to Construct (PTC) the Shepherd Substation Project (project). PG&E filed an amendment to the application for a PTC with CPUC on December 2, 2011. The proposed project includes:

- A 115/21-kilovolt (kV) electrical substation
- Approximately 1.5 miles of 115-kV power line
- Extension of an existing distribution line
- Two new underground distribution lines
- Reconductoring of an overhead distribution line

The proposed electrical substation, power line, and distribution lines are located in an unincorporated area of Fresno County, California, north of the City of Clovis (Figure 1.1-1).

1.2 ENVIRONMENTAL ANALYSIS

1.2.1 CEQA PROCESS

This Initial Study (IS) has been prepared pursuant to the California Environmental Quality Act (CEQA), the amended State CEQA Guidelines (14 California Resource Code 15000 *et seq.*), and the CPUC CEQA rules (Rules 2.4). The purpose of the IS is to inform the decision-makers, responsible agencies, and the public of the proposed project, describe the existing environment that would be affected by the project, and identify the potential environmental effects that would occur if the project is approved. The IS also identifies proposed mitigation measures that would avoid or reduce environmental effects.

All potentially significant impacts associated with the project can be mitigated to a level below significance; therefore, a Mitigated Negative Declaration (MND) can be adopted by the CPUC in accordance with CEQA Public Resource Code §21080.

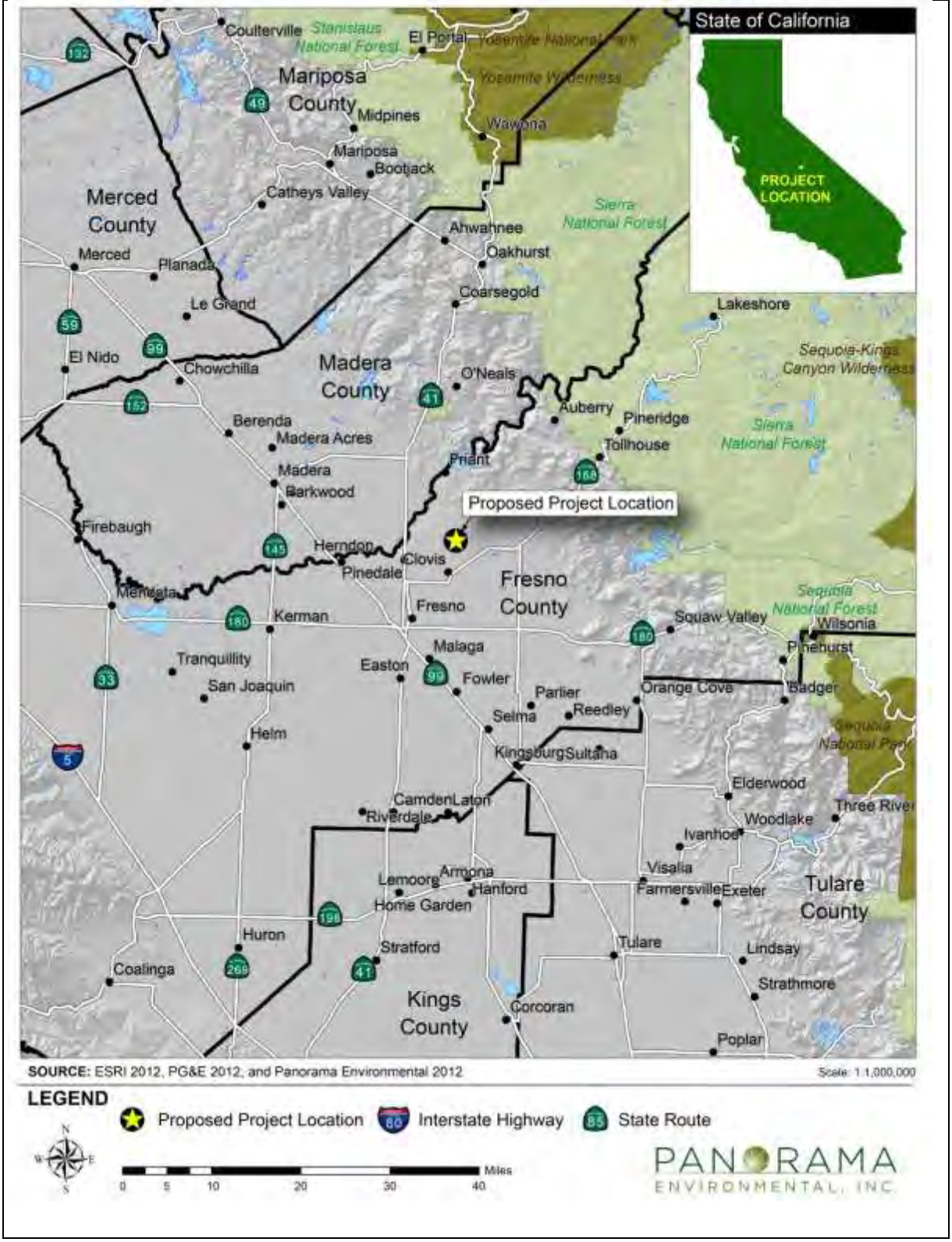
1.2.2 CEQA LEAD AGENCY

The CPUC is the lead agency for review of the project under CEQA because the CPUC is the agency that must make a decision as to whether to adopt the MND and to approve or deny the PTC.

1.2.3 INITIAL STUDY

The IS presents an analysis of potential effects of the proposed project on the environment. The IS is based on information from PG&E's Proponent's Environmental Assessment (PEA) and associated submittals, site visits, CPUC data requests, and additional research.

Figure 1.1-1: Proposed Project Location



Construction activities could have direct and indirect impacts on the environment. The following environmental parameters are addressed in the IS, based on the potential for the proposed project to have effects on the environment:

- Aesthetics
- Agricultural Resources
- Air Quality
- Greenhouse Gases
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Traffic and Transportation
- Utilities and Service Systems
- Mandatory Findings of Significance

The IS has been organized into the following sections:

- Chapter 1: Introduction. Provides an introduction and overview of the proposed project and the CEQA process, and identifies key areas of environmental analysis.
- Chapter 2: Project Description. Presents the project objectives and provides an in-depth description of the proposed project, including construction details and methods.
- Chapter 3: Environmental Setting and Environmental Impacts. Includes a description of the existing conditions and analysis of the proposed project's potential environmental impacts, and identifies mitigation measures to reduce potentially significant impacts to less than significant levels.
- Chapter 4: Mitigation Monitoring Plan. Identifies the monitoring requirements for APMs, AMMs, and mitigation measures
- Chapter 5: References. Lists the sources of information used to prepare the IS.
- Chapter 6: Report Preparation. Lists the preparers of the IS and identifies public agencies that were consulted during preparation of the document.

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2 PROJECT DESCRIPTION

2.1 PROJECT OVERVIEW

PG&E proposes to construct and operate the Shepherd Substation, a 115/21-kV electrical substation with capacity for up to three 45-Megavolt Ampere (MVA) transformers. A 115-kV overhead power line interconnection would be constructed to link the substation to the existing power grid. The new 115-kV power line would be approximately 1.5 miles long. The existing distribution line located north of the substation would be extended to E. Copper Avenue as under-build along the new 115-kV power line. Two new 21-kV distribution lines and one 12-kV distribution line would be constructed south of the substation. The new distribution circuits to the south would primarily be underground. One of these circuits would transition to overhead, tying into an approximately one-mile portion of an existing overhead 12-kV distribution line that is being reconductored and converted to 21-kV voltage. The project location and project layout are shown in Figure 2.1-1. The project is located in an unincorporated area of Fresno County, California, north of the City of Clovis.

2.2 PURPOSE AND NEED

2.2.1 PROJECT PURPOSE

The purpose of the proposed project is to:

- Meet long-term capacity needs
- Increase future system flexibility
- Minimize ratepayer costs and environmental impacts

2.2.2 MAXIMIZE SYSTEM EFFICIENCY AND RELIABILITYPROJECT NEED

The proposed project is needed to accommodate existing load and future growth within the remaining developable land in the Woodward Distribution Planning Area (DPA). The Woodward DPA serves the northeastern portion of the City of Fresno and the northwestern portion of the City of Clovis. This heavily residential and commercial area consists primarily of large subdivisions and commercial developments (Transcon 2010).

The Woodward DPA has a historically high rate of growth due to continued commercial development. In addition, the City of Clovis is preparing the Northwest Urban Village Specific Plan. Although development has been slowed due to current economic conditions, this area is anticipated to continue to grow rapidly due to the desirability of the area and its school district. Current and projected loads of the Woodward DPA are detailed in Table 2.2-1.

Figure 2.1-1: Project Layout

Table 2.2-1: Current and Projected Loads of the Woodward DPA	
Characteristic	**Rate**
Current Capacity	339.0 megawatts (MW)
2012 Projected Load	322.6 MW
2014 Projected Load (Based on 1-4-12 Load Growth Projection)[1]	340.9 MW
2015 Projected Load (Based on 1-4-12 Load Growth Projection)[1]	345.6 MW
Note: [1.] PG&E uses a program of voluntary reduction in electricity use, known as Customer Energy Efficiency (CEE). For any given planning area, the historical CEE energy and peak demand impacts have been subsumed within the peak load demands experienced year by year and, thus, their reductions are included in the forecasts of peak growth.	

SOURCE: PG&E 2012

The Woodward DPA is currently served by four existing 115/21-kV substations, which are identified in Table 2.2-2. All existing substations are fully utilized. A new substation is needed to accommodate existing and future growth from the remaining developable land. To best serve the system's load, any new substation must be located such that it is connected to the 21-kV system from Clovis Substation, which is isolated from the rest of the 21-kV system in the Woodward DPA.

Table 2.2-2: Existing Substations in the Woodward DPA		
Substation	**Transformers**	**Area Served**
Bullard	One 115/21-kV, 45-MVA transformer	Woodward DPA
	Two 115/12-kV, 45-MVA transformers	Central Fresno DPA
Clovis	One 115/21-kV, 45-MVA transformer	Woodward DPA
	Two 115/12-kV, 45-MVA transformers	Clovis DPA
Pinedale	Three 115/21-kV, 45-MVA transformers	Woodward DPA
Woodward	Three 115/21-kV, 45-MVA transformers	Woodward DPA

SOURCE: Transcon 2010

2.2.3 PROJECT BENEFITS

Operation of the Shepherd Substation would increase distribution capacity to serve electric customers in the cities of Clovis and Fresno and in unincorporated portions of Fresno County during peak demand conditions. The proposed project would support the connection of new residential and commercial customers and increase emergency capacity and reliability for existing customers.

2.3 PROJECT LOCATION AND REGIONAL CONTEXT

2.3.1 PROJECT LOCATION

The proposed project is located just north of the City of Clovis, within an unincorporated area of Fresno County, California. Table 2.3-1 includes the Township, Range, and Sections in which the substation and power line interconnection would be located. Figure 2.3-1 shows an overview of the project area in terms of the Public Land Survey System legal description (Section, Township, and Range).

Table 2.3-1: Project Component Legal Description[1]

Project Component	Section(s)	Township	Range
Shepherd Substation	20	12 South	21 East
Power Line Interconnection	17 and 20	12 South	21 East
Distribution Lines	20, 21, 28, and 29	12 South	21 East

Note:
1. Mount Diablo Baseline and Meridian, U.S. Geological Survey 7.5-minute quadrangle maps (Friant and Clovis).

Substation

The proposed substation would be located at the southwest corner of Sunnyside Avenue and Perrin Avenue in Fresno County. The area of the proposed substation is currently used as an almond orchard. The substation would be within the almond orchard and set back from the existing right-of-way for N. Sunnyside Avenue by approximately 65 feet and from the northern border of the property to East Perrin Avenue by approximately 75 feet. Figure 2.3-2 shows the proposed substation location.

115-kV Power Line

The proposed 115-kV power line interconnection would be approximately 1.5 miles long. Figures 2.3-3, 2.3-4, and 2.3-5 show the approximate alignment of the proposed power line. The 115-kV power line would extend east from the north side of the substation to Sunnyside Avenue. It would then extend north along the west side of Sunnyside Avenue and would be located approximately 15 feet west of the existing distribution line alignment. From Sunnyside Avenue, the power line alignment would be located along the eastern edge of a retention/infiltration basin managed by the Fresno Metropolitan Flood Control District. The power line would then span Behymer Avenue and continue north through an agricultural area. The existing distribution line alignment ends approximately 0.87 mile north of Perrin Road. The new power line would extend approximately 0.63 mile beyond the end of the existing distribution right-of-way (ROW) through private properties to E. Copper Avenue where it would interconnect with the existing Kerckhoff-Clovis-Sanger #1 115-kV Power Line. The existing distribution line would be extended north to E. Copper Avenue as under-

Figure 2.3-1: Project Location, Section, Township, and Range

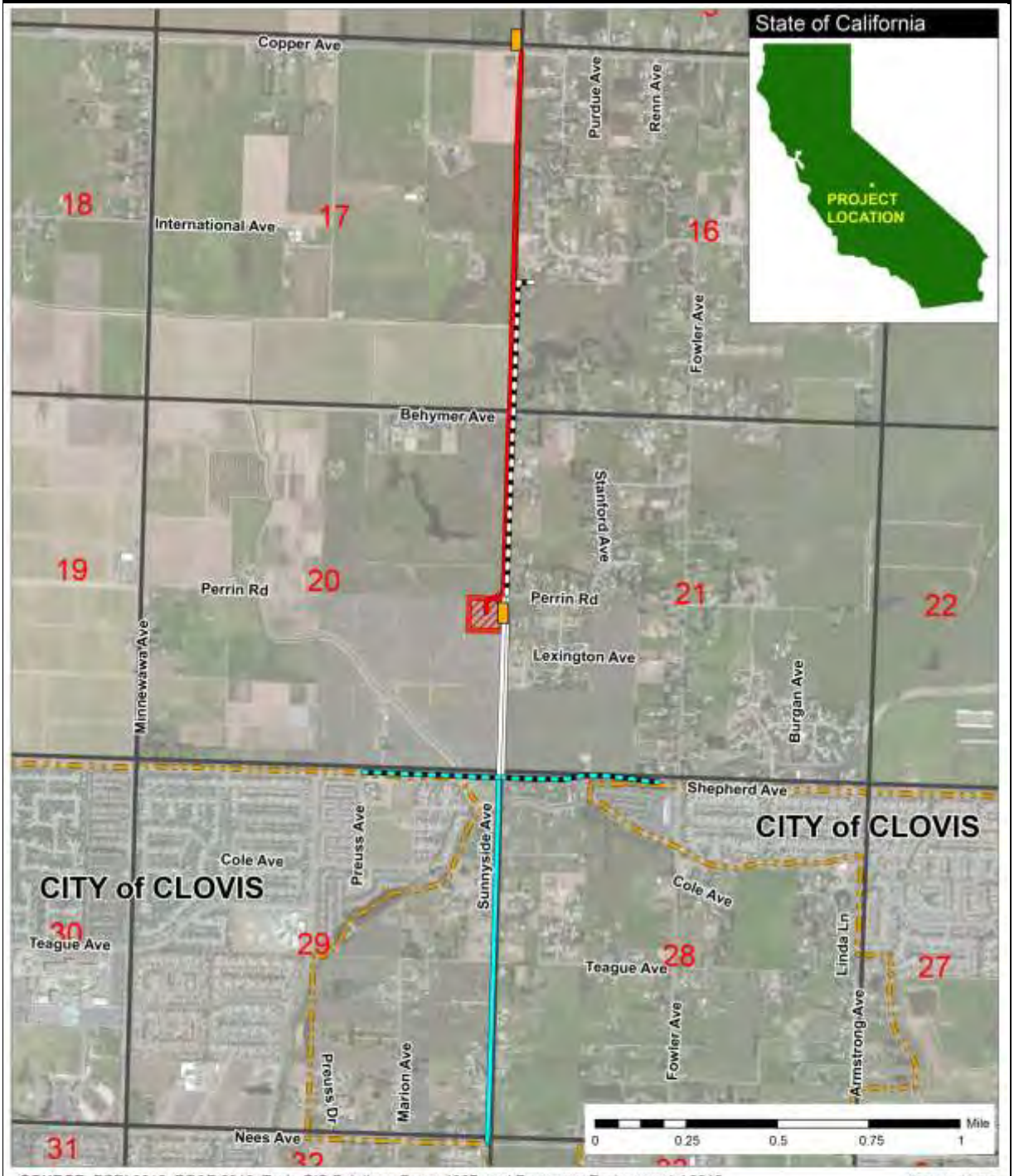


Figure 2.3-2: Substation Location

Figure 2.3-3: Proposed Power Line and Distribution Line Alignments

Figure 2.3-4: Proposed Power Line and Distribution Line Alignments Map 1

Figure 2.3-5: Proposed Power Line and Distribution Line Alignments Map 2

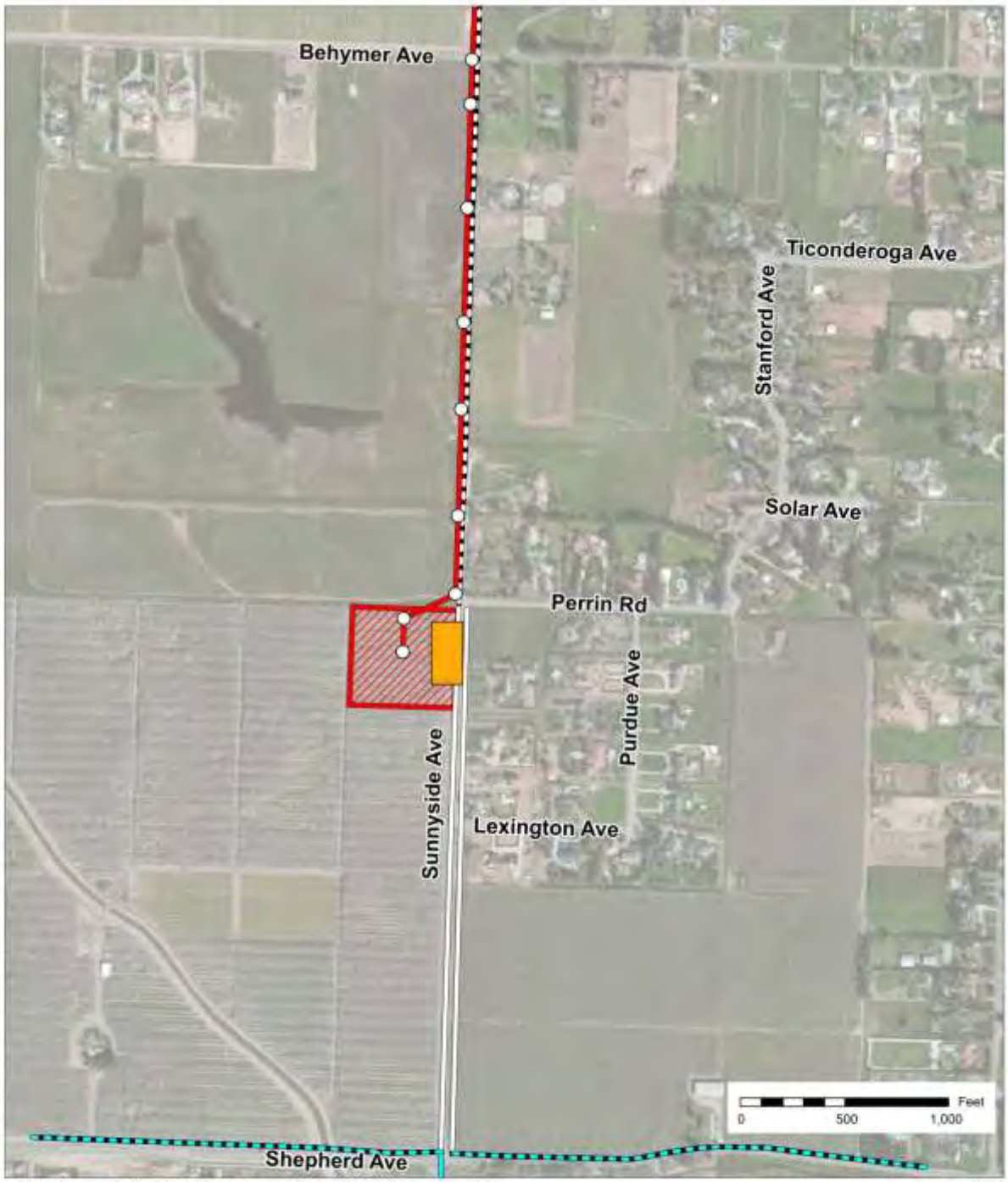


Figure 2.3-6: Proposed Power Line and Distribution Line Alignments Map 3

build along the new 115-kV power line. The new power line would have a ROW width of 60 feet to accommodate the 115-kV line.

Shepherd Avenue West 21-kV Distribution Line

The proposed Shepherd Avenue West 21-kV distribution line would extend underground approximately 0.5 mile south from Shepherd Substation along the west side of Sunnyside Avenue to Shepherd Avenue. The distribution line would then extend underground west approximately 0.4 mile along the north side of Shepherd Avenue to intercept an existing distribution line. This distribution line would be bored underneath Enterprise Canal. Figures 2.3-3 and 2.3-5 show the alignment of the proposed Shepherd Avenue West 21-kV distribution line.

Sunnyside Avenue South 21-kV Distribution Line

The proposed Sunnyside Avenue South 21-kV distribution line would be collocated along Sunnyside Avenue in the same trench as the Shepherd Avenue West distribution line. This distribution line would be bored underneath Shepherd Avenue and would rise onto wood poles south of Shepherd Avenue. The 21-kV distribution line would extend above ground for approximately 1.0 mile between Shepherd Avenue and Nees Avenue, and would replace the existing 12-kV aboveground distribution line (the line would be reconductored). Figures 2.3-3, 2.3-5, and 2.3-6 show the alignment of the proposed Sunnyside Avenue South 21-kV distribution line.

Shepherd Avenue East 12-kV Distribution Line

The proposed Shepherd Avenue East 12-kV distribution line would be bored underneath Sunnyside Avenue and would extend underground south along the east side of Sunnyside Avenue for approximately 0.5 mile to Shepherd Avenue. The distribution line would then extend east underground for approximately 0.5 mile along the north side of Shepherd Avenue to intercept an existing 12-kV distribution line. Figures 2.3-3 and 2.3-5 show the alignment of the proposed Shepherd Avenue East 12-kV distribution line.

2.3.2 REGIONAL CONTEXT

The proposed substation location area has historically been cultivated and is currently operated as an almond orchard. Existing land uses vary around the orchard but are typically associated with a rural or low-density residential and agricultural character. The land immediately north of the proposed substation site is undeveloped, and further north is a Fresno Metropolitan Flood Control District water retention/infiltration basin. The almond orchard extends to the south and west of the proposed substation area.

Land uses along the proposed power line alignment include a mix of low-density residential housing, agricultural lands, and undeveloped land. The 115-kV power line would be built along property lines and along existing fence lines. Land uses along the proposed distribution lines include low-density residential housing, medium-density residential housing, commercial, parks and recreation, agricultural lands, and undeveloped land. The

distribution lines would be built underground except for a segment along Sunnyside Avenue that would replace an existing aboveground distribution line.

2.4 PROJECT COMPONENTS

2.4.1 SHEPHERD SUBSTATION

The proposed 115/21-kV Shepherd Substation is planned as an unmanned, automated, low-profile electrical substation that would require only periodic maintenance. Figure 2.4-1 shows the preliminary layout of Shepherd Substation.

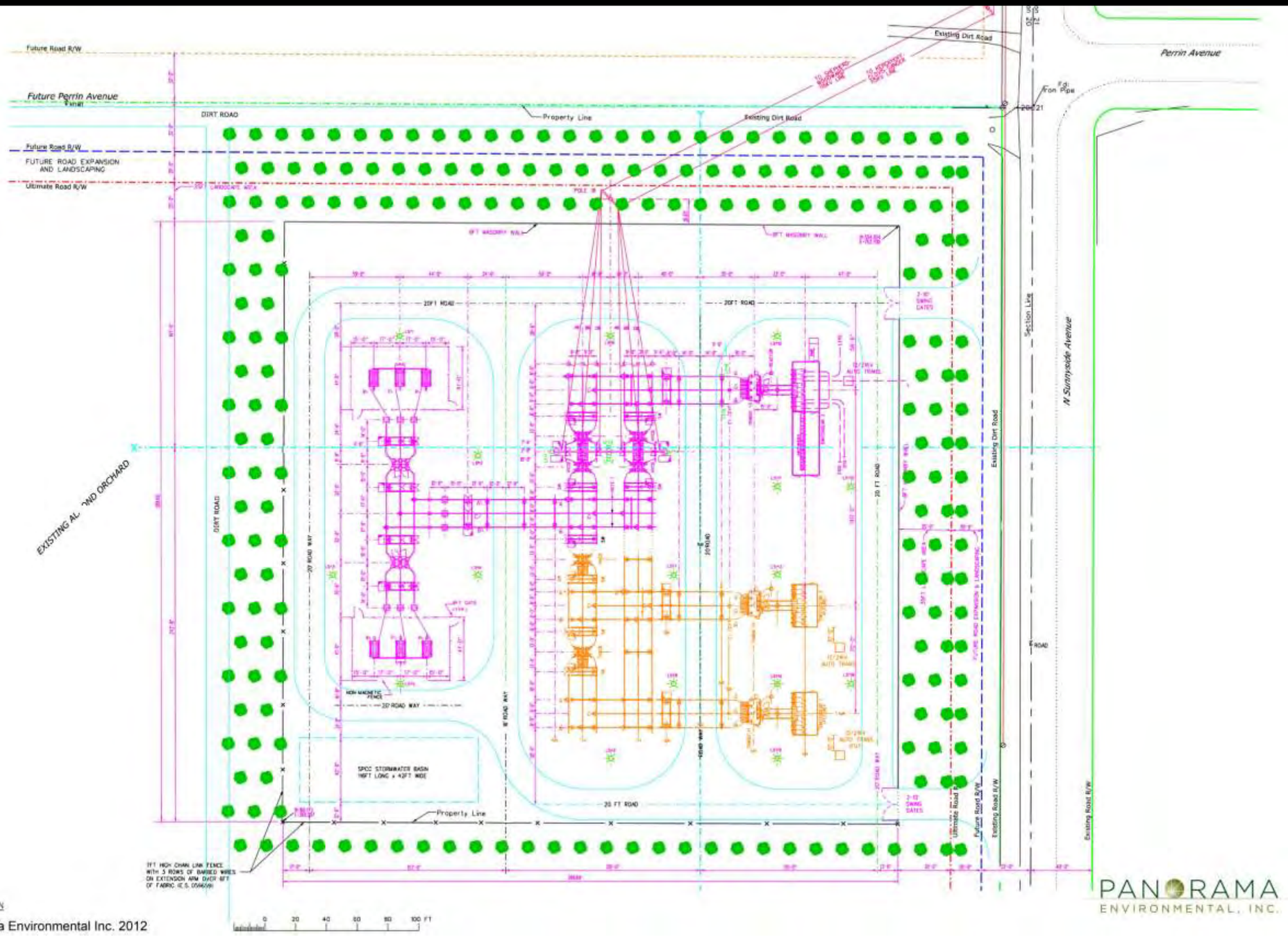
Electrical power would enter the substation through the proposed power line, which would extend from the existing PG&E Kerckhoff-Clovis-Sanger #1 115-kV Power Line that parallels the south side of E. Copper Avenue. Power would leave the substation at 21/12-kV through three distribution feeder lines that would interconnect with the existing electrical distribution network. The proposed substation would include the following components:

- New 115/21-kV distribution substation, with three 45-MVA transformers at full build out
- Up to three distribution circuits per transformer leaving the substation in underground conduits and either transitioning to an overhead position or remaining underground
- A 21/12-kV transformer
- Two paved access roads from Sunnyside Avenue to the substation
- A stormwater detention and Spill Prevention Control Countermeasure (SPCC) basin

The dimensions of the substation would be approximately 390 feet by 399 feet, entirely situated within the approximately 5-acre (roughly 466 feet by 466 feet) parcel owned by PG&E. The substation would include up to three approximately 35-foot-tall dead-end structures supporting the 115-kV power line. It would also include transformers, switches, and buswork that would be approximately 15 feet tall. A neutral-colored, pre-fabricated, 10-foot-high concrete wall would be constructed around the north and east sides of the substation and a chain-link fence would be erected along the remaining sides. The chain-link fence would be 8 feet high, with 1 foot of barbed wire extending above the fence. To create a vegetative screen, PG&E would leave three rows of almond trees between the substation fence and Sunnyside Avenue, as well as three rows of almond trees along the north side of the substation. A groundwater well would likely be constructed within the 5-acre parcel to provide a water source for the remaining almond trees.

Because the proposed project would disturb more than 1 acre of land, PG&E would develop a Stormwater Pollution Prevention Plan (SWPPP) and would comply with all applicable National Pollution Discharge Elimination System (NPDES) construction stormwater permit requirements. A stormwater detention basin would be constructed within the 5-acre substation parcel. The basin would be engineered to follow acceptable industry standards as

Figure 2.4-1: Preliminary Layout of Shepherd Substation



SOURCE: PG&E 2012 and Panorama Environmental Inc. 2012

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well as the Fresno County basin capacity criteria and design standards. Best Management Practices (BMPs) developed by PG&E for substation construction would also be followed.

Security lighting would be installed for safety and security. Security lighting would consist of sodium vapor lamps and all exterior lighting would use non-glare light bulbs, designed and positioned to minimize casting light and/or glare to off-site locations. Light poles placed at each corner of the substation would be approximately 10 feet tall and constructed of galvanized steel. The lights would be controlled by a photocell that automatically turns the lights off during the day and on at night.

PG&E may construct a groundwater well within the 5-acre parcel to provide a source of water for the remaining almond trees on the north and east sides of the parcel. If a well is necessary, PG&E will obtain all necessary permits and comply with applicable requirements.

2.4.2 POWER LINE INTERCONNECTION

A proposed double-circuit, 115-kV power line would link the existing Kerckhoff-Clovis-Sanger #1 115-kV Power Line to the proposed substation (Figure 2.3-3). The proposed power line interconnection would be approximately 1.5 miles long, and would be constructed from Shepherd Substation north to E. Copper Avenue. An existing 12-kV distribution line extends approximately 1 mile north from the proposed substation site. The existing distribution line would be moved to the new 115-kV power line as under-build. Wood poles for the existing distribution line would be removed, where feasible, and disposed of as described below.

Power Line Poles

Two types of poles would be installed for the proposed power line: 1) tubular steel poles (TSP) and (2) a drop-down pole. Power line pole characteristics are described in Table 2.4-1. Figure 2.4-2 depicts a typical TSP and drop-down pole.

The preliminary power line design would span the north side of the substation from a turning structure located along Sunnyside Avenue to a single TSP at the northern edge of the substation. Each circuit would then angle south to drop down to a dead-end structure (where PG&E terminates its power line conductors) within the substation. The dead-end structure would be approximately 35 feet tall.

The new power line alignment would be located approximately 15 feet west of an existing 12-kV distribution line alignment from Shepherd Substation to approximately 0.5 mile north of Behymer Avenue. The existing distribution line would be collocated on the new power line structures.

Removed distribution line wood poles would be completely removed and recycled, reused, or disposed of at a landfill facility that is authorized to accept treated wood pole waste in accordance with California Health and Safety Code Section 25143.1.5(b). Where necessary, to maintain service to existing customers, wood poles would be preserved in place.

Table 2.4-1: Power Line Design Characteristics (Approximate and Preliminary)		
Feature	**Tubular Steel Pole**	**Drop-down Pole at Substation**
Structure Height[1]	90-100 feet	70 feet
Structure Width	2-4 feet in diameter	2-3 feet in diameter
Foundation Width	5-6 feet in diameter	5-6 feet in diameter
Structure Foundation	Cast-in-place concrete foundations, 21-30 feet deep	Cast-in-place concrete foundations, 21-30 feet deep
Span length	500-600 feet	500-600 feet
Notes: [1] Aboveground height.		

SOURCE: Transcon 2010

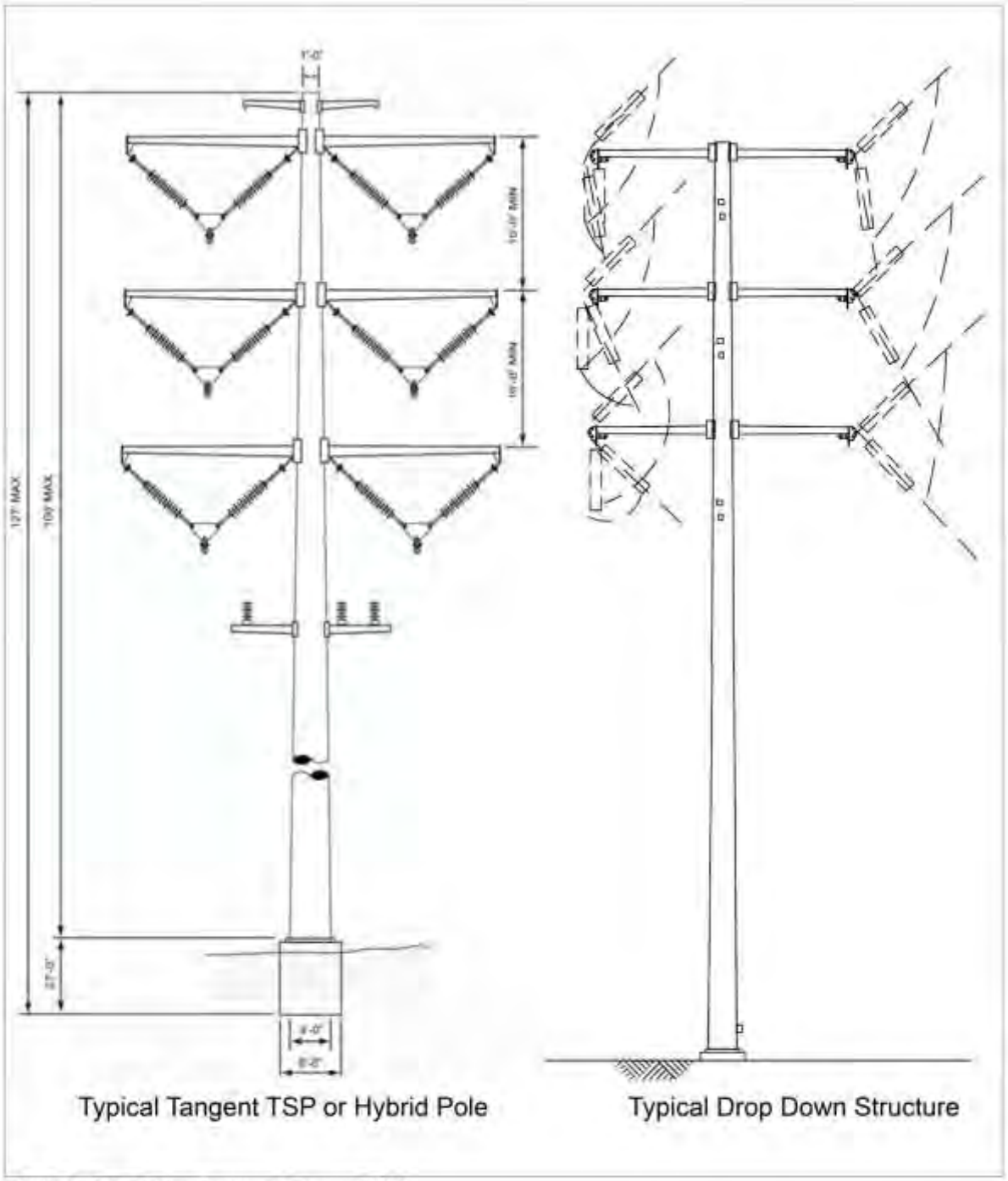
Conductor

The proposed power line would include the installation of approximately 61 strands of non-specular, all aluminum conductor. The conductor would be installed in a double circuit, with one conductor per phase with three phases for each circuit in a vertical configuration (Figure 2.4-2). The conductor has a diameter of approximately 1.75 inches and weighs approximately 2.177 pounds per foot. The conductor would comply with the General Order (GO) 95 requirement to have a minimum ground clearance of 30 feet. Horizontal distance between conductors would be a minimum of approximately 15 feet at each structure and a minimum of approximately 10 feet in span. Vertical distance between conductors would be 10 feet minimum.

2.4.3 DISTRIBUTION FEEDER LINES

Two 21-kV distribution lines and one 12-kV distribution line are planned to link the proposed substation to the existing distribution system south of the substation (Figures 2.3-3, 2.3-5, and 2.3-6). Each distribution line would be approximately 1 to 1.5 miles in length and would be constructed within an underground trench from the proposed substation to Sunnyside Avenue. Two 21-kV distribution lines would be constructed within the same trench along the west side of Sunnyside Avenue to Shepherd Avenue. From Shepherd Avenue one distribution line would remain underground heading west along Shepherd Avenue to an existing power line. At the crossing of Enterprise Canal, the distribution line would be bored underneath the canal. The other distribution line would be bored underneath Shepherd Avenue and would rise onto wood poles following along the west side of Sunnyside Avenue within an existing distribution line alignment. The 12-kV distribution line would be bored underneath Sunnyside Avenue and would be constructed underground along the east side of Sunnyside Avenue to Shepherd Avenue where it would head underground east along the north side of Shepherd Avenue.

Figure 2.4-2: Typical Tubular Steel Pole (TSP) and Dropdown Structure



SOURCE: PG&E 2010 and Panorama Environmental 2012

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2.5 CONSTRUCTION ACTIVITIES

2.5.1 CONSTRUCTION SEQUENCE AND METHODS

Although substation construction, power line interconnection construction and distribution feeder line construction would occur simultaneously, project construction would generally follow the order listed below:

1. Substation Construction
    a. Land clearing, rough grading, and compaction of subgrade
    b. Installation of security fence
    c. Excavation of foundations, raceways, and ducts
    d. Installation of grounding grid
    e. Construction of the buswork structure
    f. Installation of facilities

2. Power Line Interconnection Construction
    a. Pole foundation excavation and installation
    b. Structure assembly and erection
    c. Conductor and ground wire stringing
    d. Collocation of distribution line

3. Distribution Feeder Lines Construction
    a. Pole removal and replacement
    b. Installation of distribution circuits

4. Cleanup Activities

Construction material for the substation, power line, and distribution lines would be staged within the boundaries of the proposed Shepherd Substation, at PG&E's existing Gregg Substation in Madera or, for short periods, along the project route. No additional areas would be required to stage materials. Materials would be moved from the substation to the work site on a daily basis and no additional laydown areas are proposed.

Substation Construction

The substation would be constructed on an approximately 466-feet by 466-feet (approximately 5-acre) parcel of land currently operated as an almond orchard. Substation construction would begin by clearing almond trees within the 5-acre parcel. Three rows of tress would remain on the north and east sides of the parcel to provide some visual screening of the facility. Removed trees would be disposed of in accordance with applicable rules and regulations. Once trees are cleared, the site would be graded and compacted to establish a flat surface for construction and provide proper drainage. All grading would be in compliance with Fresno County ministerial grading requirements. Based on preliminary designs, approximately 8,500 cubic yards of clean, compacted fill would be imported to raise the elevation of the site to avoid inundation from periodic flood irrigation of the surrounding

almond orchard. The structure foundations would be approximately 6 inches above final grade and the grading would range from current grade to approximately 2 feet above current grade within the 5-acre parcel.

A perimeter enclosure with two access gates would be constructed around the substation perimeter for security. An 8-foot-high chain-link fence with 1 foot of barbed wire would be installed on two sides (south and west) and a 10-foot-high pre-fabricated concrete wall would be installed on the other two sides (north and east), with almond trees located outside of the wall. Two entrances to the substation would be located along Sunnyside Avenue at the north and south ends of the substation. One two-door, 10-foot-high swing gate would be installed at each entrance (Figure 2.4-1)

Below-grade construction would occur following site preparation. PG&E would construct foundations, a stormwater detention and Spill Prevention Control and Countermeasure (SPCC) basin, raceways, and underground conduit. Reinforced concrete subsurface footings and concrete slabs would be installed along with the ground grid. Substation equipment foundations would be approximately 5-16 feet deep.

Aboveground steel structures, circuit breakers, transformers, switchgears, buses, and other electrical equipment would be installed once the below-grade construction is complete. Equipment would be bolted or welded to slabs and footings and connected to the ground grid. The maximum height of substation equipment would be approximately 35 feet for the dead-end structures supporting the 115-kV power line interconnection. The transformers, switches, and buswork would be approximately 15 feet tall. Substation structures and equipment would be a neutral gray color.

At full build out, the substation would include three 45-MVA transformers, each containing approximately 6,000 gallons of mineral oil (the mineral oil does not contain polychlorinated biphenyls). The SPCC basin would be sufficiently sized to contain the transformer mineral oil from the largest transformer in the case of an accidental spill.

PG&E would construct two paved, 20-foot-wide access roads between Sunnyside Avenue and the substation. The roads would be at the north and south ends of the substation and would be approximately 35 feet long. Access roads and roads within the substation would be paved.

Security lighting would be installed for safety and security. Security lighting would consist of sodium vapor lamps and all exterior lighting would use non-glare light bulbs, designed and positioned to minimize casting light and/or glare to off-site locations. Light poles placed at each corner of the substation would be approximately 10 feet high and constructed of galvanized steel. The lights would be controlled by a photocell that automatically turns the lights off during the day and on at night.

Power Line Interconnection Construction

Foundation Excavation and Installation

A tracked power auger would be used to excavate holes to a depth of approximately 21 to 30 feet for pole placement. Approximately 848 cubic feet of soil would be excavated and replaced with approximately the same volume of concrete where foundations are installed. A boom truck would be used to set rebar cage and anchor bolts. Any holes that are required to be left open overnight would be covered and secured. Concrete pole foundations would be cast in place following excavation. Grading would not be required for these activities.

Foundation excavation would require access to structure sites by a power auger or drill, material truck, and ready-mix concrete truck. Access is discussed in Section 2.5.3 below. Soils left over after poles have been erected would be spread at the structure location or, if necessary, transported for off-site disposal in accordance with applicable laws.

Structure Assembly and Erection

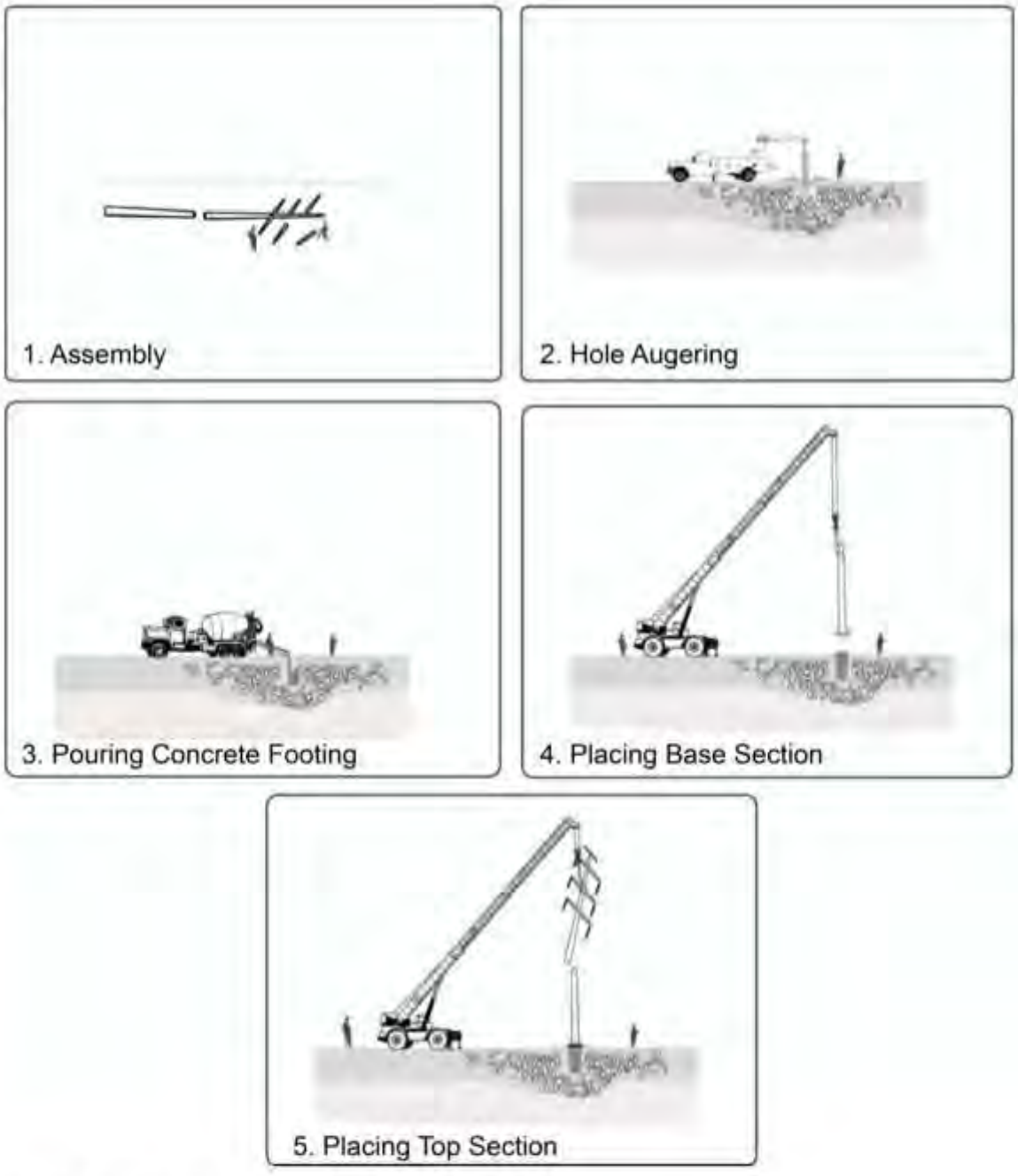
Pole structure assembly and erection activities include mobilizing construction vehicles, equipment, and poles along existing roads and ROWs, and assembling and erecting the structures. Sections of new structures and associated hardware would be delivered by flatbed truck to each structure site where erection crews would add the cross arms and, using a large crane, position structures onto their foundations. Typical TSP installation is depicted in Figure 2.5-1.

Conductor Stringing

Once poles are erected, conductor would be strung from conductor pull and tension sites at the end of the power line interconnection alignment. Each site would be approximately 1 acre in size. The southern pull site would be located within the 5-acre substation parcel or along N. Sunnyside Avenue. The northern pull site would be located in an agricultural field on the north side of E. Copper Avenue. Reels of conductor would be delivered to the pull and tension sites and, because the area is level, little or no earth-moving would be required to provide access. Sites free of woody vegetation would be selected, if possible, to avoid unnecessary vegetation removal. The conductors would be attached to the power poles and then pulled into place from these locations.

Crews would then install insulators and sheaves. Sheaves are rollers attached to the lower end of the insulators at the end of each pole structure cross-arm. The sheaves allow crews to pull sock lines, rope, or wire used to pull power line interconnection conductors into place. Once the equipment is set up, a lightweight vehicle would pull the sock line from one pole to the next. At each pole, the sock line would be hoisted to the cross-arm and passed through the sheaves on the ends of the insulators. Conductor would then be attached to the sock line and pulled through each supporting structure while under tension. Once each conductor is pulled into place, it would be pulled to a pre-calculated sag and then tension-clamped to the

Figure 2.5-1: Typical Tubular Steel Pole (TSP) Installation



SOURCE: PG&E 2010 and Panorama Environmental 2012

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end of each insulator. The final step of the conductor installation process would be to remove the sheaves and install vibration dampers and accessories.

Prior to pulling and tensioning, workers would install temporary guard structures where the line crosses Behymer Avenue to prevent sock line or conductors from dropping onto the road.

Collocation of Distribution Line

The approximately 1 mile of existing distribution line along the proposed power line alignment would be moved onto the new power line structures and extended to E. Copper Avenue. The existing distribution line wood poles would be removed except those needed to maintain service to local customers. A boom truck would be used to loosen old poles as needed and to pull the old wooden poles directly out of the ground. Old poles, associated hardware, and any other debris would be completely removed and recycled, reused, or disposed of at a landfill facility that is authorized to accept treated wood pole waste in accordance with California Health and Safety Code Section 25143.1.5(b). The distribution line would be installed on the new power line structures in the under-build position below the power line.

Distribution Feeder Lines Construction

The 21/12-kV distribution feeder lines would be placed in underground conduit within the substation. Initially, four distribution feeder lines are planned for the substation, but distribution lines would be added for areas of demand on an as-needed, to-be-determined basis. Extending south from the substation, three of the distribution feeder lines will be underground as they leave the substation, with one of those lines transitioning above ground at Sunnyside Avenue to tie into an approximately one-mile portion of an existing distribution line. The fourth distribution feeder line, an existing overhead line leading north from the substation, will be extended north to Copper Avenue as underbuild along the new 115-kV power line.

Trenching

Trenching for the distribution lines would involve excavating with a backhoe a trench approximately 18 inches wide and a minimum of approximately 42 inches deep. The material from the trench would be sidecast onto adjacent soil within the County franchise area/ROW. The County franchise area where work would be conducted consists of an approximately 10-foot-wide unpaved area adjacent to County roads. Once the trench is excavated, cable and conduit would be installed. When the trench is ready for backfilling, the trench would be filled with the excavated soil and the soil would be compacted to meet engineering standards. In-ground splice boxes, which are approximately 5.5 feet by 9.5 feet by 7 feet deep, would be installed as necessary along the distribution lines. An estimated 18 in-ground splice boxes would be required. Equipment required for trenching of the distribution lines would work off-road where feasible; however, some lane closures may be required during project construction. PG&E would implement a traffic control plan to manage traffic around work areas.

Drilling

One of two drilling methods would be used to install the distribution lines underneath Enterprise Canal and at roadway crossings. Drilling methods could include horizontal directional drilling (HDD) or jack-and-bore. HDD uses a hydraulically powered horizontal drilling rig operating from the ground to bore beneath the surface. During boring activities, drilling fluid is pumped under high pressure through the drill stem to rotate the cutting head and return the soils to a pit at the entry point. Drilling fluids consist of a water/bentonite (dehydrated clay) mixture. The HDD contractor would be responsible for proper disposal of any soil cuttings, drilling mud, fluids, or waste in accordance with all federal, state, and local regulations. Once the hole is drilled, the polyvinyl chloride (PVC) conduit that would hold the underground distribution line would be pulled through the borehole.

Infrequently, the high-pressure drilling mud used during HDD escapes to the surface because of unanticipated soil properties. This is referred to as "fracturing-out" (frac-out). PG&E would implement BMPs outlined in the PG&E Horizontal Directional Drilling Manual to prevent or contain frac-outs.

The jack-and-bore drilling method requires excavating an entry and an exit pit, each approximately 24 feet long by 16 feet wide by 6 feet deep, using an excavator or a backhoe. The walls would be shored if needed before the boring machine is lowered into the entry pit. The boring machine would push (i.e., jack) a steel casing horizontally through the soil while at the same time removing earth in the casing with a rotating auger. The auger carries loose soil through the auger and back to the entry pit where it is shoveled out of the pit. Once the casing is installed, conduits that would hold the underground distribution line would be assembled and pulled through the steel casings.

Overhead Distribution Line

For the portion of the Sunnyside Avenue South 21-kV distribution line that would be overhead, the existing wood poles for the 12-kV distribution line would be replaced with new wood poles approximately 45 feet tall. The existing wood poles are approximately 34 to 40 feet tall, and would be completely removed and recycled, reused, or disposed of at a landfill facility that is authorized to accept treated wood pole waste in accordance with California Health and Safety Code Section 25143.1.5(b). New wood poles would be installed within 5 feet of the existing wood poles, unless existing aboveground or below-ground conditions render an alternative location necessary. Should an alternate location be required, PG&E would select a location for the new pole that is within the County franchise area and as close to the existing poles as required by project needs. Poles would be replaced on an approximately 1:1 basis. One pull and one tension site would be necessary for the new overhead distribution line. Each pull and tension site would be approximately 50 feet by 100 feet (0.05 acre). The sites would be located at the north and south ends of the distribution line.

Cleanup Activities

PG&E would ensure that the construction site is kept clean during the construction period. Trash would be picked up daily and either removed from the work site or properly contained. A final cleanup of the work area would be performed upon completion of construction activities. Final grading would ensure that contours match those of the surrounding area. Re-seeding or other restoration would be conducted as necessary to restore temporarily disturbed areas. Revegetation and site restoration including repaving of driveways and repairs to any other disturbed structures would be conducted along the underground distribution line alignments. Site restoration activities would be conducted to match the pre-project conditions of the area in temporarily disturbed areas. PG&E would repair or replace any fences damaged through construction of the power line.

2.5.2 ESTIMATED GROUND DISTURBANCE

Estimates of ground disturbance associated with construction and operation of the project are summarized in Table 2.5-1.

2.5.3 CONSTRUCTION ACCESS

Where the power line alignment is located along property lines in roadless areas (i.e., between Behymer Avenue and E. Copper Avenue), vehicles and equipment would travel down the center of the ROW, or as close as possible while avoiding sensitive areas. Entrance to private property would be obtained from the property owner and entryways for equipment may be added to existing fences. No access roads would be constructed. The area is flat, so grading and earthwork to allow for equipment access to pole locations is not expected. Existing roads would be used where present. Heavy construction vehicles and equipment would require access to the location of each new structure, but not necessarily along the length of the entire alignment between structures. Local roads such as N. Sunnyside Avenue, Behymer Avenue, and E. Copper Avenue provide access to points along the alignment. Unpaved roadways along the retention/infiltration basin would also be used.

2.5.4 CONSTRUCTION PERSONNEL AND EQUIPMENT

Construction of the project would be conducted in stages. For this reason, personnel would conduct multiple functions, and equipment would access the various work locations on multiple trips. All material would be delivered to the staging area by truck. During construction of the substation, power line, and distribution lines, a traffic control plan would be implemented for temporary obstructions along roadways. Truck trips are estimated to peak during the transport of clean fill for substation construction. Estimated truck trips at the peak period would be approximately 40 to 45 round-trips of heavy-duty trucks per day. This peak period is expected to last approximately two weeks.

Typical equipment used during substation construction and for maintenance operations is summarized in Table 2.5-2. Table 2.5-3 and Table 2.5-4 provide the same information for power line interconnection and distribution line interconnection construction, respectively.

Table 2.5-1: Estimated Ground Disturbance

Project Feature	Estimated Ground Disturbance per Site	Number of Sites	Total Estimated Temporary Disturbance Area	Total Estimated Permanent Disturbance Area
Substation	5 acres	1	5.00 acres	5.00 acres
TSPs	50-foot radius	17	3.06 acres	0.17 acre
Drop-down Poles	50-foot radius	1	0.18 acre	0.01 acre
Power Line Stringing Setup Areas (Pull and Tension Sites)	150 feet x 300 feet	2*	1.03 acres	—
Underground Distribution Circuits	15,200 linear feet x 40 feet	1	14.00 acres	—
Distribution Line Wood Pole Replacement	40 feet x 100 feet	30	2.7 acres	0.01 acre
Distribution Stringing Setup Areas (Pull and Tension Sites)	50 feet x 10 feet	2	0.10 acre	—
In-ground vaults	5.5 feet x 9.5 feet	18	0.02 acre	0.02 acre
Total			27.17 acres	5.10 acres

*The acreage for the pull and tension site within the substation is accounted for in the temporary disturbance for the substation.

SOURCE: Transcon 2010; Transcon 2011; PG&E 2012

Table 2.5-2: Substation Personnel and Equipment

Primary Equipment Description	Primary Equipment Quantity	Estimated Number of Personnel	Estimated Activity Schedule	Estimated Usage per Day
Grading				
Water Truck	1	8	18 days	4 hours
1/2-Ton Truck, 4x4	2			2 hours
980 Loader	1			8 hours
Grader	1			8 hours

Table 2.5-2 *(Continued)*: Substation Personnel and Equipment				
Primary Equipment Description	**Primary Equipment Quantity**	**Number of Personnel**	**Estimated Activity Schedule**	**Estimated Usage per Day**
Vibratory Compactor	1			6 hours
Survey				
1/2-Ton Truck, 4x4	2	2	5 days	8 hours
Civil (Foundation, Underground Conduit, Grounding Grid, etc.)				
1-Ton Crew Truck, 4x4	2	8	18 days	4 hours
Fork Lift	1			2 hours
Dump Truck	1			1 hour
Stake Bed Truck	1			2 hours
Drill Rig	2			2 hours
Tractor	1			3 hours
Trencher	1			4 hours
Electrical (Mechanical and Electrical Equipment Room [MEER], Switch Racks, Conductor, Circuit, Breakers, etc.)				
1-Ton Crew Truck, 4x4	2	12	80 days	4 hours
1/2-Ton Truck, 4x4	4			4 hours
Carryall Vehicle	2			4 hours
Crane	2			4 hours
Lift Truck	1			4 hours
Man Lift	2			4 hours
Transformer Setup				
1-Ton Crew Truck, 4x4	2	5	20 days	2 hours
Carryall Vehicle	1			2 hours
Crane	1			6 hours
Forklift	1			6 hours
Processing Trailer	1			12 hours
Low-bed Truck	1			4 hours

Table 2.5-2 *(Continued)*: Substation Personnel and Equipment				
Primary Equipment Description	**Primary Equipment Quantity**	**Number of Personnel**	**Estimated Activity Schedule**	**Estimated Usage per Day**
Test Facilities				
1/2-Ton Truck, 4x4	1	2	60 days	2 hours
Paving				
1-Ton Crew Truck, 4x4	1	8	20 days	4 hours
Dump Truck	2			6 hours
Road Paver	1			1 hour
Skip Loader	2			6 hours
Fence Construction				
1/2-Ton Truck, 4x4	1	6	20 days	4 hours
1-Ton Crew Truck, 4x4	1			4 hours
Bobcat	1			1 hour
3-Ton Flat Bed Truck	3			1 hour

SOURCE: Transcon 2010

Table 2.5-3: Power Line Personnel and Equipment				
Primary Equipment Description	**Primary Equipment Quantity**	**Number of Personnel**	**Estimated Activity Schedule**	**Estimated Usage per Day**
Survey				
1/2-Ton Truck, 4x4	4	4	1 day	5 hours
Install Foundations				
1-Ton Flat Bed Truck, 4x4	4	6	32 days	4 hours
70-Ton Crane Truck	1			7 hours
15 Ton Boom Truck	1			7 hours
Pole Haul				
35 to 40-Ton Crane	1	8	4 days	10 hours
40-Foot Flat-bed Truck/Trailer	2			10 hours

Table 2.5-3 *(Continued)*: Power Line Personnel and Equipment				
Primary Equipment Description	**Primary Equipment Quantity**	**Number of Personnel**	**Estimated Activity Schedule**	**Estimated Usage per Day**
Pole Assembly				
15-Ton Crane Truck	1	8	4 days	10 hours
1-Ton Flat-bed Truck, 4x4	1			10 hours
Conductor Single Circuit				
1-Ton Flat-bed Truck, 4x4	2	20	4 days	5 hours
Wire Truck/Trailer	1			10 hours
3/4-Ton Truck, 4x4	2			5 hours
30-Ton Manitex	2			10 hours
Static Tensioner	1			10 hours
3-Drum Puller	1			10 hours
30-lb 3-Drum Puller	1			10 hours
Restoration				
Road Grader	1	6	2 days	10 hours
Water Truck	4			2 hours
Lowboy Truck/Trailer	1			6 hours
Excavator	1			10 hours
Skip Loader	1			10 hours

SOURCE: Transcon 2010

Table 2.5-4: Distribution Line Personnel and Equipment				
Primary Equipment Description	**Primary Equipment Quantity**	**Number of Personnel**	**Estimated Activity Schedule**	**Estimated Usage per Day**
Overhead Reconductoring				
Digger Derrick (Line Truck) with Cargo Trailer	1	6	1.5 months	2 hours
Bucket Truck	2			2 hours
Wire Dolly	1			2 hours at 1 time/week
Rope Truck (Tension)	1			2 hours at 1 time/week
¾-Ton Truck	1			2 hours
1.5-Ton Truck	1			2 hours
Underground Electric Installation				
Boom Truck	1	6	1.5 months	2 hours at 2 times/week
Wire Dolly	1			2 hours at 2 times/week
1.5-Ton Truck with Underdog (underground cable puller)	1			2 hours
¾-Ton Truck	1			2 hours
1.5-Ton Truck	1			2 hours
Line Truck	1			2 hours
Splice Van	1			2 hours at 2 times/week
Excavation: Trenching and Conduit Installation				
Water Truck (as needed)	1	5	2.5 months	2 hours
26,000-lb Gas Crew Truck with Trailer	1			2 hours

Table 2.5-4 *(Continued)*: Distribution Line Personnel and Equipment				
Primary Equipment Description	**Primary Equipment Quantity**	**Number of Personnel**	**Estimated Activity Schedule**	**Estimated Usage per Day**
1-Ton Truck	1			2 hours
10-Yard Dump Truck with Trailer	1			2 hours
Trencher	1			2 hours
Bore Rig	1			2 hours/bore 36 hours total

SOURCE: Transcon 2011

An estimated daily peak of 45 personnel would be involved in the construction of the substation, power line, and distribution lines. Multiple crews would be working simultaneously during construction of the proposed project.

2.6 CONSTRUCTION SCHEDULE

Construction is scheduled to begin in June of 2013 and is anticipated to take approximately 12 months to complete. The proposed construction schedule is included in Table 2.6-1.

Construction crews would work between 6:00 a.m. and 9:00 p.m. on weekdays, and may also work Saturday or Sunday between the hours of 7:00 a.m. and 5:00 p.m. Construction would only be conducted outside of these hours if it is required for project safety or to take advantage of the limited times when the power line can be taken out of service. Mitigation requirements may restrict work times on a conditional basis.

Table 2.6-1: Proposed Construction Schedule	
Project Activity	**Proposed Timeframe**
Construction starts	March 2014
Power and distribution line construction	August 2014 – June 2015
Substation construction	August 2014 – June 2015
Project operational	June 2015
Cleanup	June 2015 – March 2016
Total Duration	**March 2014 – March 2016**

SOURCE: PG&E 2012, Preliminary and Subject to Change

2.7 OPERATION AND MAINTENANCE

The operation of Shepherd Substation would be controlled remotely from PG&E's Fresno Control Center located approximately 10 miles southwest of the substation. The substation would be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Routine inspections by substation personnel would occur monthly, or as needed under emergency conditions. Routine inspection would include inspection of hardware, insulator keys, and conductors. Equipment at Shepherd Substation would be inspected annually to allow the detection of problems with corrosion, equipment alignment, or foundations. Vegetation trimming would be conducted in accordance with CPUC's GO 95 (Rules for Overhead Electric Line Construction).

The power and distribution lines would be inspected annually. Routine maintenance would include replacing faulty insulators and tightening nuts and bolts, as needed. Under normal conditions, a more comprehensive inspection would be done every 3 to 5 years. In addition, power lines are sometimes damaged by storms, floods, vandalism, or accidents and require immediate repair. Emergency repair operations would involve the prompt deployment of crews to repair and replace damaged equipment.

2.8 REQUIRED APPROVALS

The CPUC is the lead state agency for project review under CEQA. Table 2.8-1 includes a summary of the permits and approvals from other federal, state, and local agencies that may be needed for the project.

Table 2.8-1: Summary of Potential Permits/Approvals

Agency	Permit/ Approval
California Department of Fish and Game	California Fish and Game Code, Section 2081
California Department of Transportation	Transportation Permit (oversized vehicles)
California Public Utilities Commission	Permit to Construct
California Regional Water Quality Control Board	NPDES Stormwater Permit
San Joaquin Valley Air Pollution Control District	Dust Control Plan
U.S. Fish and Wildlife Service	Endangered Species Act, Section 10

2.9 RIGHT-OF-WAY ACQUISITION

PG&E has purchased the property rights for the 5-acre substation site and will acquire additional easements as necessary for an approximately 60-foot-wide ROW for the power line interconnection. The distribution lines would be constructed entirely within County franchise area and a ROW would not be required.

Land entitlement issues are not part of the regulatory proceeding through which the CPUC is considering whether to grant or deny PG&E's application for a PTC. Rather, any land rights issues would be resolved in subsequent negotiations and/or condemnation proceedings (if necessary) in the proper jurisdiction following the decision by the CPUC on PG&E's application.

2.10 APPLICANT-PROPOSED MEASURES

PG&E's Applicant Proposed Measures (APMs) are listed below and have been incorporated into the proposed project's design and construction plans to minimize the proposed project's potential impacts. These measures would be implemented regardless of any regulatory oversight by the CPUC. The assessment of the levels of significance associated with each potential project-specific impact is discussed in the context of these APMs being included as part of the project. Where potentially significant impacts were identified, additional mitigation measures were added throughout this IS/MND, superseding or supplementing existing APMs to further reduce impacts to a less-than-significant level. APMs presented below are referenced from the PEA (Transcon 2010 and Transcon 2011).

Aesthetics

APM Visual-1: Construct a prefabricated concrete wall on the north and east sides of the substation and replanting as necessary to leave three rows of trees on the east and north sides of the substation to minimize contrast with the existing visual character of the area. As almond trees die, or are impacted by road widening along Sunnyside and Perrin Avenues, the trees will be replaced with compatible vegetation.

APM Visual-2: Security lighting will consist of sodium vapor lamps and all exterior lighting will use non-glare light bulbs, designed and positioned to minimize casting light and/or glare to off-site locations. Security lighting will be designed at the substation in a way such that all lighting is directed inwards. In addition, all exterior lighting will be hooded to reduce light pollution.

Air Quality

APM Air-1: All disturbed areas that are not being actively used for construction purposes will be stabilized of dust emissions using water or covered with a tarp or other suitable covering.

APM Air-2: All unpaved roads utilized for accessing the project will be stabilized by spraying with water.

APM Air-3: All ground-disturbing activities will be effectively controlled of fugitive dust emissions by application of water or by presoaking.

APM Air-4: When materials are transported off site, all material will be covered or wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained.

APM Air-5: All operations will remove the accumulation of mud or dirt from adjacent public streets at the end of each workday.

APM Air-6: Trackout (i.e., dirt and mud transported on vehicle tires and transferred to the pavement upon existing the work area) will be removed at the end of each workday when it extends 50 or more feet from the site.

APM Air-7: Speeds of vehicles and equipment operating on unpaved surfaces will be limited to no more than 15 miles per hour, and as required in the project dust control permit.

APM Air-8: Dust suppressants or watering will be used to ensure that dust is controlled to less than 20 percent opacity when winds exceed 20 miles per hour.

Greenhouse Gases

APM GHG-1/Noise-5: When not performing construction, operation, or maintenance activities, vehicles will be shut off rather than left idling unnecessarily. Some equipment or vehicles may require extended start-up times. For such equipment, a common sense approach will be used to determine idling times. Normal idling will not exceed five minutes, as required by California law.

APM GHG-2: Diesel fueled off-road construction equipment with 50 horsepower or greater engines shall at a minimum meet U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) Tier 1 engine standards. Compliance records will be kept by the general construction contractor. This APM is not applicable to equipment permitted by the local air quality district or certified through CARB's Statewide Portable Equipment Registration Program, or single specialized equipment that will be used for less than five total days.

APM GHG-3: PG&E will incorporate the following measures into its construction plans to further reduce greenhouse gas emissions:

- Encourage construction workers to carpool by establishing carpooling to construction sites where feasible to do so.
- Encourage recycling of construction waste.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.

APM GHG-4: PG&E will continue to be an active member of the SF_6 Emission Reduction Partnership, which focuses on reducing emissions of sulfur hexafluoride (SF_6) from transmission and distribution sources. PG&E will also continue to institute new rules for more accurately monitoring its equipment for SF_6 leaks and immediately repairing leaks that are discovered. PG&E will ensure that all breakers purchased for this project will have a manufacturer's guaranteed SF_6 leakage rate of 0.5 percent per year or less.

Biological Resources

APM Bio-2: To prevent the spread of noxious weeds, only equipment which has been washed and is free of caked on mud, dirt, and other debris which could house plant seeds will be allowed in the project area.

APM Bio-6: In accordance with, and in addition to the training requirements in AMM 1 of the PG&E San Joaquin Valley Habitat Conservation Plan (HCP), worker environmental awareness training will be conducted prior to initiating project construction activities and throughout the duration of construction, such that all new site workers have received training. Worker training will detail sensitive species of the project area and those conservation measures which have been identified to minimize impacts to them. In addition, workers will be informed about the presence, life history, and habitat of these species. Training will also include information on federal and state laws protecting migratory birds. Documentation of worker training will be available on-site.

APM Bio-7: In accordance with the monitoring requirements in AMMs 15 and 17 of the HCP, a biological monitor will be onsite during ground disturbing activities with the potential to disturb habitat near flagged exclusion and restricted activity zones in order to minimize impacts to salamanders. Before the start of work each morning, the biological monitor will check under all equipment and stored supplies left in the work area overnight within 600 feet of suitable habitat for listed species with a potential to occur in the area. The monitor will have the authority to stop work or determine alternative work practices in consultation with agencies and construction personnel, as appropriate, if construction activities are likely to impact sensitive biological resources. The biological monitor will document monitoring activities in a daily log summarizing construction activities and environmental compliance.

APM Bio-8: All work will be done in a manner that minimizes disturbance to wildlife and habitat.

APM Bio-9: All food waste and associated containers will be disposed of in closed lid containers.

APM Bio-11: Proper spill prevention and cleanup equipment shall be readily available.

APM Bio-12: Where work on pavement, existing roads, and existing disturbed areas is not practicable, worker vehicles and construction equipment shall remain on identified access routes and designated areas for construction. If additional areas are required, a biologist will survey the new area, identify any sensitive biological resource, and flag that resource for avoidance.

APM Bio-13: No pets or firearms are permitted within the project area.

APM Bio-14: Sensitive areas will be clearly flagged or marked. Sensitive areas will be avoided during construction unless the necessary agency permits and/or approvals have been obtained.

APM Bio-18: All pole holes will be backfilled or covered at the end of the work day by a method that would restrict any wildlife from entering the hole from the surface, and to prevent human injury.

APM Bio-19: PG&E will consider the location of seasonal wetlands in the design of the power line. No power line poles will be placed in seasonal wetlands. Prior to construction the perimeter of the seasonal wetland near project construction will be flagged for avoidance.

APM Bio-20: Suitable habitat areas (i.e., seasonal wetlands, ponds, and canals) within the project area will be identified during preconstruction surveys. These areas will be mapped and clearly marked in the field, and will be avoided during construction.

APM Bio-22: Additional conservation measures and/or mitigation recommended by the USFWS and CDFG through consultation for the California tiger salamander will be incorporated into the project. Any APMs that conflict with permits issued by the USFWS and/or CDFG will be superseded by those resource agency permit requirements.

APM Bio-24: Avian Power Line Interaction Committee Guidelines in accordance with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006[1] will be incorporated into the power line design to minimize the likelihood of avian electrocutions.

APM Bio-25: To the extent that the terms of these APMs conflict with subsequently negotiated terms and conditions of any state and/or federal environmental permit, the subsequent permit conditions will supersede the terms of these APMs.

Cultural Resources

APM Cult-2: If the applicant revises the location of proposed facilities and ground-disturbing activities that affect areas beyond those surveyed for the PEA, those areas will be subjected to a cultural resources inventory to ensure that any newly identified sites are avoided by ground-disturbing activities.

APM Cult-3: The applicant will minimize or avoid impacts to any potentially significant prehistoric and historic resources that might be discovered during construction by implementing standard protocols that include ceasing all work within 50 feet of the discovery, protecting the discovery from further impacts, and immediately contacting a PG&E Cultural Resources Specialist.

APM Cult-4: If human remains are discovered, work in the immediate vicinity will stop immediately and a PG&E Cultural Resources Specialist will be contacted. The location of the discovery will be secured to prevent further impacts and the location will be kept

[1] 1. Avian Power Line Interaction Committee. 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C., and Sacramento, California.

confidential. The Cultural Resources Specialist will evaluate the discovery and will contact the Fresno County Coroner upon verifying that the remains are human. If the coroner determines the remains are Native American, the Native American Heritage Commission (NAHC) shall be contacted and the remains will be left in situ and protected until a decision is made on their final disposition.

Geology and Soils

APM Geo-1/WQ-1: Erosion and Sediment Control Plan (ESCP) implementation. An ESCP will be prepared in association with the Stormwater Pollution Prevention Plan (SWPPP). This plan will be prepared in accordance with the Water Board guidelines and other applicable Best Management Practices (BMPs). Implementation of the plan will help stabilize disturbed areas and waterways and will reduce erosion and sedimentation. The plan will designate BMPs that will be followed during construction activities. Erosion-minimizing efforts may include, but are not limited to, measures such as:

1. Avoiding excessive disturbance of steep slopes.
2. Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas.
3. Strictly controlling vehicular traffic.
4. Implementing a dust-control program during construction.
5. Restricting access to sensitive areas.
6. Using vehicle mats in wet areas.
7. Revegetating disturbed areas, where applicable, following construction. In areas where soils are to be temporarily stockpiled, soils will be placed in a controlled area and will be managed with similar erosion control techniques. Where construction activities occur near a surface water body or drainage channel and drainage from these areas flows towards a water body or wetland, stockpiles will be placed at least 100 feet from the water body or will be properly contained (such as berming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures will be used to protect exposed areas during and after construction activities. Erosion-control measures will be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, will remain in place until disturbed areas have stabilized.
8. The SWPPP will be designed specifically for the hydrologic setting of the project. BMPs documented in the ESCP may also be included in the SWPPP.

Hazards and Hazardous Materials

APM Haz-1: Emergency spill response and cleanup kits will be available on site and readily available for the cleanup of any accidental spill. Construction crews will be trained in safe handling and cleanup responsibilities prior to the initiation of construction.

APM Haz-2: In the event of an accidental spill, the substation is equipped with a retention basin that meets SPCC Guidelines (40 CFR 112). The SPCC basin will be sufficiently sized to accommodate the accidental spill of all mineral oil from the largest transformer located at the substation. The substation will also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Containment will be constructed around and under the battery racks with neutralizing pads.

APM Haz-3: A water truck will be available on site during dry conditions, as assessed by the construction foreman, to prevent the ignition or spread of a wildfire. The work site will be sprayed a minimum of three times per day during dry conditions.

Hydrology and Water Quality

APM WQ-2: PG&E will avoid working within seasonal wetlands, ponds, or other water bodies. No poles will be placed within seasonal wetlands. The limits of seasonal wetlands adjacent to the work areas will be flagged in the field for avoidance. Underground canal and creek crossings will be drilled or bored underneath the water body.

APM WQ-3: PG&E will engineer a permanent infiltration basin within the substation perimeter to capture on-site stormwater, clean it of potential pollutants, and infiltrate it into the local groundwater table. Sizing and design of the facility will follow industry best practices, including Fresno County and California Stormwater General Permit guidelines.

Noise

APM Noise-1: Construction will not occur before 6:00 a.m. or after 9:00 p.m. on any day except Saturday or Sunday, when construction will not occur before 7:00 a.m. or after 5:00 p.m. Work will only be conducted outside of these hours as required for project safety or to take advantage of the limited times when the power line can be taken out of service.

APM Noise-3: Where feasible, construction traffic will be routed to avoid sensitive noise receptors such as residences, schools, religious facilities, hospitals, and parks.

APM Noise-4: Stationary equipment used during construction will be located as far as practical from sensitive noise receptors.

APM Noise-6: Where feasible, equipment will be used that is specifically designed for low noise emissions and equipment powered by electric or natural gas as opposed to diesel or gasoline.

APM Noise-7: Residents in areas of heavy construction noise will be notified prior to commencing construction activities. Notification should include written notice and the posting of signs in appropriate locations with a contact number that residents can call with questions and concerns.

Transportation and Traffic

APM Tran-1: Deliveries will be made during normal construction hours.

APM Tran-2: PG&E shall prepare and implement a Traffic Management Plan or plans as required by, and in accordance with County requirements. The plan or plans shall be submitted to the CPUC when submitted to the County, and shall be distributed to all construction supervisors prior to commencement of construction activities.

2.11 AVOIDANCE AND MINIMIZATION MEASURES

2.11.1 BIOLOGICAL RESOURCES

Avoidance and Minimization Measures (AMMs) from PG&E's San Joaquin Valley HCP applicable to the proposed project are listed below. These AMMs would be applied during both construction and O&M of the proposed project.

AMM 1: Employees and contractors performing operation and maintenance (O&M) activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.

AMM 2: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

AMM 3: The development of new access and ROW roads by PG&E will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

AMM 4: Vehicles will not exceed a speed limit of 15 miles per hour (mph) in the ROWs or on unpaved roads within sensitive land cover types.

AMM 5: Trash dumping, firearms, open fires (such as barbecues) not required by the O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.

AMM 6: No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

AMM 7: During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone [RCZ]), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.

AMM 9: Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.

AMM 10: If an activity disturbs more than 0.25 acre in a grassland, and the landowner approves or it is within PG&E's rights and standard practices, the area should be returned to

pre-existing conditions and broadcast-seeded using a commercial seed mix. Seed mixtures/straw used for erosion control on projects of all sizes within grasslands will be certified weed-free. PG&E shall not broadcast (or apply in other manner) any commercial seed or seed mix to disturbance sites within other natural land cover types, within any vernal pool community, or within occupied habitat for any covered plant species.

AMM 12: If a covered plant species is present, a qualified biologist will stake and flag exclusion zones of 100 feet around plant occupied habitat (both the standing individuals and the seed bank individuals) of the covered species prior to O&M activities[2]. (Note: AMM 11 addresses elderberry plants and valley elderberry longhorn beetle.)

AMM 13: If a covered annual plant species is present, O&M activities will occur after plant senescence and prior to the first significant rain to the extent practicable.

AMM 14: If a covered plant species is present, the upper 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards. (This measure will be used as an AMM for narrow endemic plants only after approval by USFWS and DFG during the Confer Process.)

AMM 15: If vernal pools are present, a qualified biologist will stake and flag an exclusion zone prior to O&M activities. The exclusion zone will encompass 250 feet[2]. Work will be avoided after the first significant rain until June 1, or until pools remain dry for 72 hours.

AMM 17: If suitable habitat for covered amphibians and reptiles is present and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to O&M activities involving excavation. If necessary, barrier fencing will be constructed around the work site to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an exclusion zone of 50 feet around the potentially occupied habitat[2]. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles

[2] If an exclusion zone cannot extend the specified distance from the habitat, the biologist will stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels). Measures are practicable where physically possible and not conflicting with other regulatory obligations or safety considerations; O&M activities will be prohibited or greatly restricted within restricted activity zones. However, vehicle operation on existing roads and foot travel will be permitted. A qualified biologist will monitor O&M activities near flagged exclusion and restricted activity zones. Within 60 days after O&M activities have been completed at a given worksite, all staking and flagging will be removed.

(excluding blunt-nosed leopard lizard and limestone salamander) are moved to nearby suitable habitat.

AMM 18: If western burrowing owls are present at the site, a qualified biologist will work with O&M staff to determine whether an exclusion zone of 160 feet during the non-nesting season and 250 feet during the nesting season can be established. If it cannot, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.

AMM 21: If San Joaquin kit fox dens are present, their disturbance and destruction will be avoided where possible. However, if dens are located within the proposed work area and cannot be avoided during construction, qualified biologists will determine if the dens are occupied. If unoccupied, the qualified biologist will remove these dens by hand-excavating them in accordance with USFWS procedures (USFWS 1999). Exclusion zones will be implemented following USFWS procedures (USFWS 1999) or the latest USFWS procedures. The radius of these zones will follow current standards or will be as follows: Potential Den—50 feet; Known Den—100 feet; Natal or Pupping Den—to be determined on a case-by-case basis in coordination with USFWS and DFG. Pipes will be capped and exit ramps will also be installed in these areas to avoid direct mortality.

AMM 22: All vegetation management activities will implement the nest protection program to avoid and minimize effects on Swainson's hawk, white-tailed kite, golden eagle, bald eagle, and other nesting birds. Additionally, trained pre-inspectors will use current data from DFG and California Natural Diversity Database (CNDDB) and professional judgment to determine whether active Swainson's hawk, golden eagle, or bald eagle nests are located near proposed work. If pre-inspectors identify an active nest near a proposed work area, they will prescribe measures to avoid nest abandonment and other adverse effects to these species, including working the line another time of year, maintaining a 500-foot setback, or if the line is in need of emergency pruning, contacting the HCP Administrator.

AMM 29: No herbicide will be applied within 100 feet of exclusion zones, except when applied to cut stumps or frilled stems or injected into stems.

AMM 30: Trees being felled in the vicinity of an exclusion zone will be directionally felled away from the zone, where possible. If this is not feasible, the tree will be removed in sections.

2.12 ELECTRIC AND MAGNETIC FIELDS

Recognizing that there is public interest and concern regarding potential health effects from exposure to Electric and Magnetic Fields (EMF) from power lines, Appendix F of PG&E's Proponent's Environmental Assessment provides some general background information regarding EMF associated with electric utility facilities. However, EMF is not addressed here as an environmental impact under CEQA. The CPUC does not consider EMF to be an

environmental issue or, in the context of CEQA, an environmental impact. This is because there is no agreement among scientists that EMF creates a potential health risk and because CEQA does not define or adopt standards for defining any potential risk from EMF. Instead, the CPUC, following a decision from 1993 (D.93-11-013) that was reaffirmed on January 27, 2006 (D.06-01-042), requires PG&E and other utilities to consider "no cost" and specified "low cost" measures to reduce public exposure to magnetic fields in accordance with PG&E's "EMF Design Guidelines for Electrical Facilities." PG&E will comply with these Guidelines.

2.13 ALTERNATIVES

CEQA does not require a review of alternatives when, as with PG&E's project, the proposed project would result in no significant environmental impacts after mitigation (Guidelines, Sec. 15126.6, subd. (a) and (f)(2)(A)). This is because, under CEQA, a "reasonable alternative" is one that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects of the project (CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, Section 151626.6 as amended July 24, 2007).

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3 ENVIRONMENTAL SETTING AND ENVIRONMENTAL IMPACTS

3.1 AESTHETICS

3.1.1 ENVIRONMENTAL SETTING

Regional Visual Character

The project area is located in a rural agricultural area that separates the foothills of the Sierra Nevada Mountains approximately 20 miles to the east from the urban areas of Clovis and Fresno, the northern boundaries of which are located approximately 0.5 mile to the south.

Owens Mountain, a prominent landform of the foothills, is approximately 4.8 miles east of the project area. The northern boundary of the City of Clovis is Shepherd Avenue. This avenue marks a stark contrast in landscape character from a landscape historically consisting of rural and suburban residences to the north to a landscape that is transitioning to urban, relatively high-density housing and commercial uses to the south. The project site sits at the juxtaposition of this change in visual character and is located on land that is more rural in character.

Local Visual Character

The visual character of the project area consists of relatively flat, open pasture lands, active and fallow agricultural fields and orchards, flood control projects, water conveyance systems, and rural residences. The landscape is highly manipulated and influenced by management activities. Architecture varies in style, age, and condition, ranging from small, modest, single-story residential structures and outbuildings to large, multistory homes and barns. Fencing and farm equipment storage areas are common. View points within the project area are depicted on Figure 3.1-1. Representative views within the project area are depicted on Figures 3.1-2 through 3.1-5.

Views of the distant Sierra Nevada Range are possible from the project area, particularly looking along the local street system and depending on air quality conditions. Elsewhere mountain views are commonly obstructed by vegetation and structures. The landscape to the south and west is flat and allows views to the horizon when unobstructed; however, small vertical features like trees and houses limit the distant views.

Recreational trails are found along Dry Creek and Enterprise Canal. A future park site/trailhead, near the intersection of Shepherd Avenue and Sunnyside Avenue, and future expansion of both the Dry Creek and Enterprise Trails are proposed.

Scenic Attractiveness

Scenic attractiveness is the primary indicator of the intrinsic visual beauty of a landscape and/or the positive responses it evokes in visitors. The scenic attractiveness for the project area is low to moderate. This attractiveness designation is due to a lack of variety in

Figure 3.1-1: Representative Views Location Map

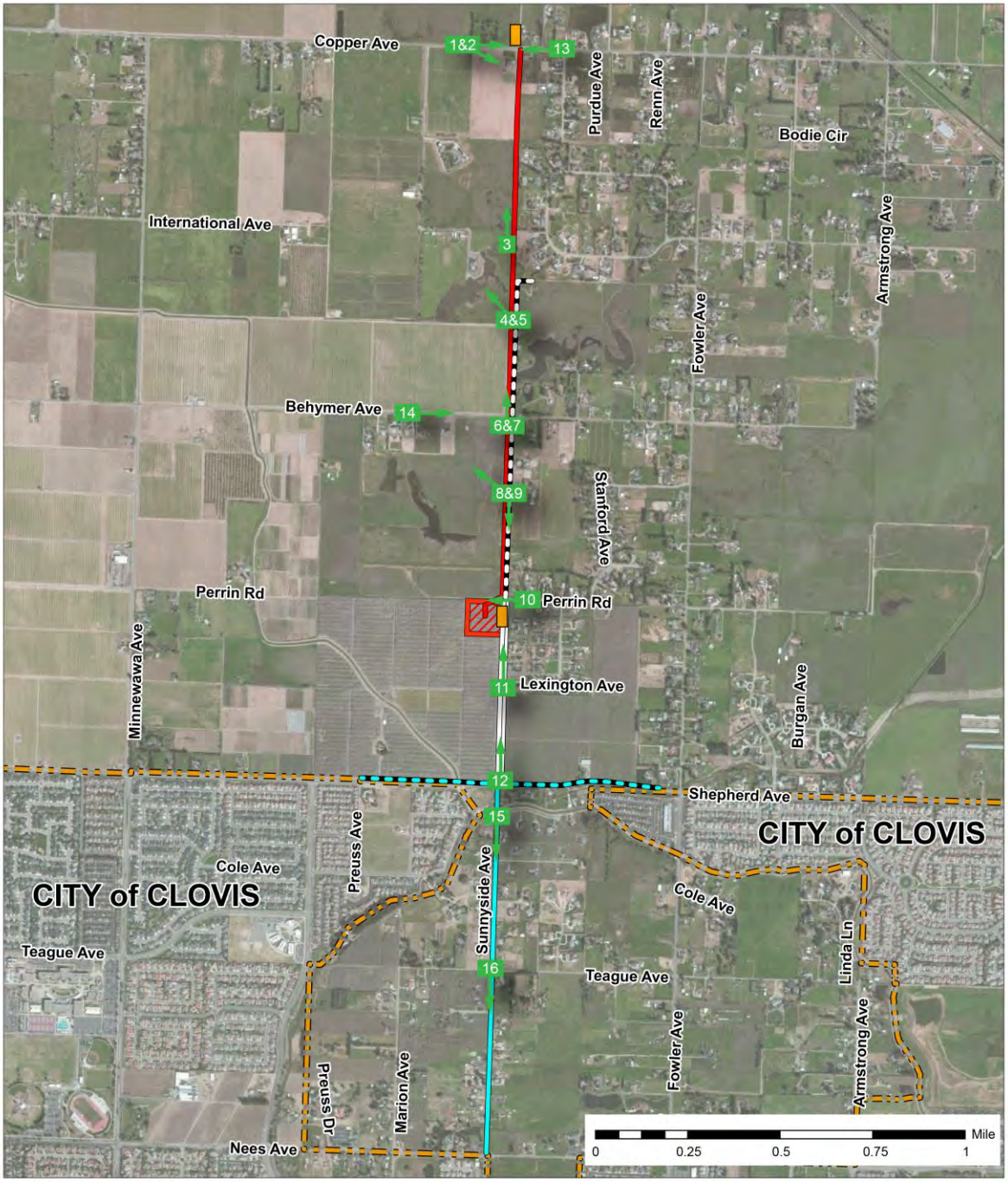

Figure 3.1-2: Representative Views

Photo #1

Photo #1: Panorama view looking east from E. Copper Avenue. Date of photograph: January 11, 2011.

Photo #2

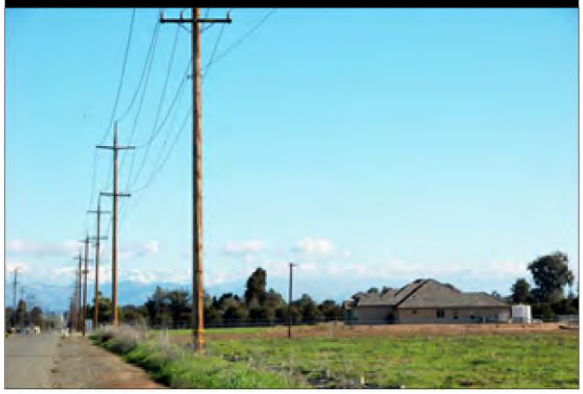

Photo #2: View looking east from E. Copper Avenue to power line route (perpendicular to street) and interconnection point with existing PG&E line. Date of photograph: January 11, 2011.

Photo #3

Photo #3: View looking north along proposed power line route from private lands. Date of photograph: January 11, 2011.

Photo #4

Photo #4: Panorama view looking northwest along the proposed power line route (to right parallel to fence line) from private lands. Date of photograph: January 11, 2011.

SOURCE: 2M Associates 2011 and Panorama Environmental 2012

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Figure 3.1-3: Representative Views

Photo #5

Photo #5: Telephoto view of residence looking northwest from power line route to residence. Date of photograph: January 11, 2011.

Photo #6

Photo #6: View looking north from E. Behymer Avenue along proposed power line route. Date of photograph: January 11, 2011.

Photo #7

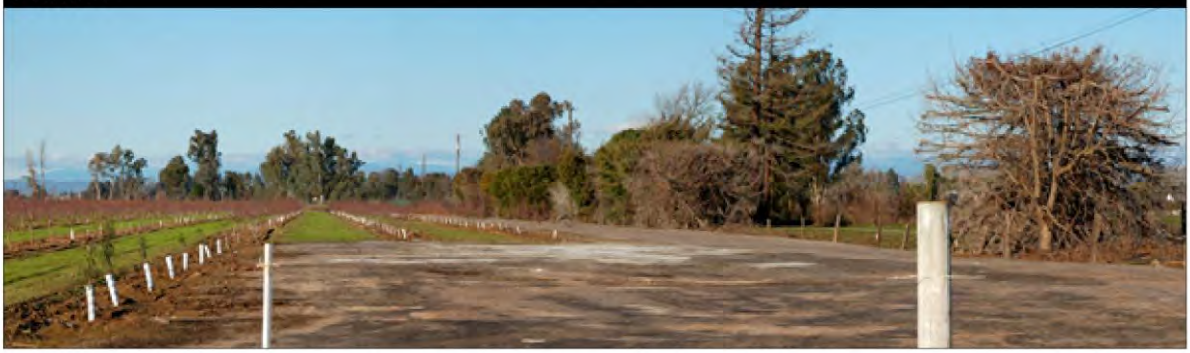

Photo #7: Panorama view looking north from E. Beymer avenue along the proposed power line route. Date of photograph: January 11, 2011.

Photo #8

Photo #8: Panorama view looking notthwest over portions of the Fresno Metropolitan Flood Control District groundwater recharge basin from the proposed power line route. Date of photograph: January 11, 2011.

SOURCE: 2M Associates 2011 and Panorama Environmental 2012

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Figure 3.1-4: Representative Views

Photo #9

Photo #9: View looking south along the proposed power line route toward substation. FMFCD ground water basin to the right.
Date of photograph: January 11, 2011.

Photo #10

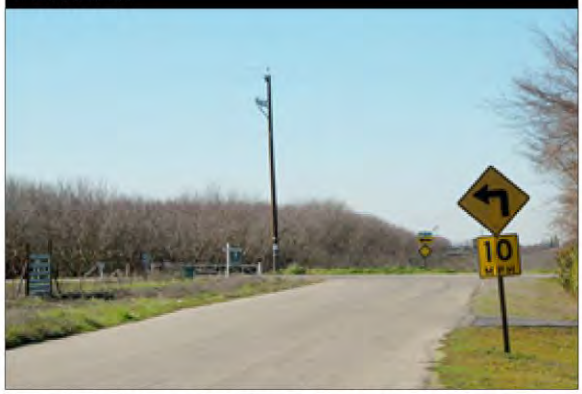

Photo #10: View looking west from Perrin Avenue to N. Sunnyside Avenue and substation site. Date of photograph: January 11, 2011.

Photo #11

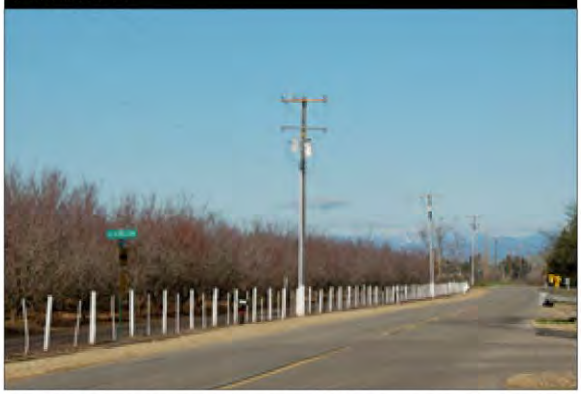

Photo #11: View looking north from N. Sunnyside Avenue near the intersection with Lexington to substation site. Date of photograph: January 11, 2011.

Photo #12

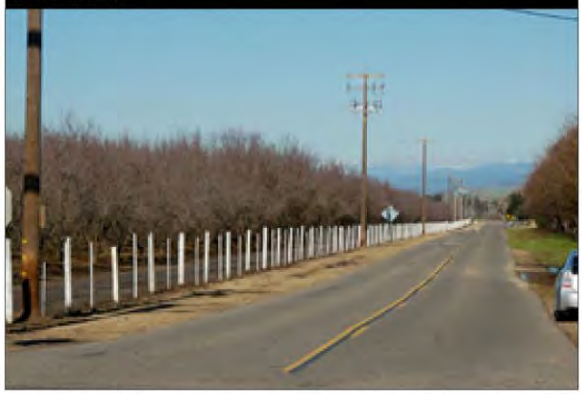

Photo #12: View looking north from intersection of N. Sunnyside Avenue with E. Shepherd Avenue to substation site. Date of photograph: January 11, 2011.

Photo #13

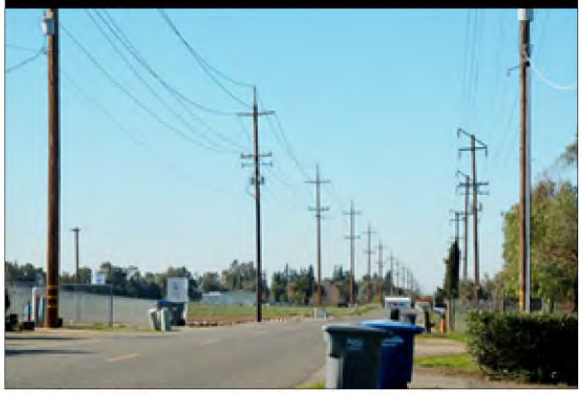

Photo #13: View looking west from E. Copper Avenue to existing power lines.
Date of photograph: January 11, 2011.

Photo #14

Photo #14: View looking east from E. Behymer Avenue to the power line route perpendicular to street. Date of photograph: January 11, 2011.

SOURCE: 2M Associates 2011 and Panorama Environmental 2012

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Figure 3.1-5: Representative Views

Photo #15

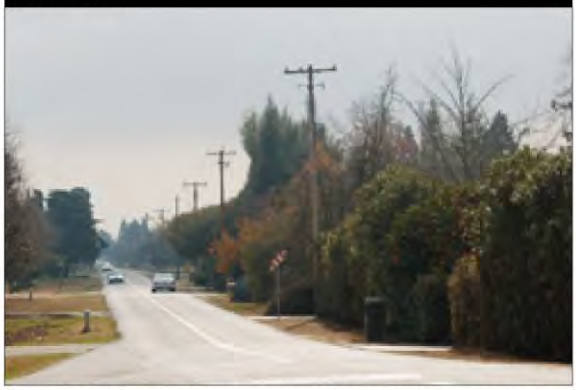

Photo #15: View looking south from Sunnyside Avenue from the intersection with Enterprise and Dry Creek Canals. Date of photograph: February 2, 2012.

Photo #16

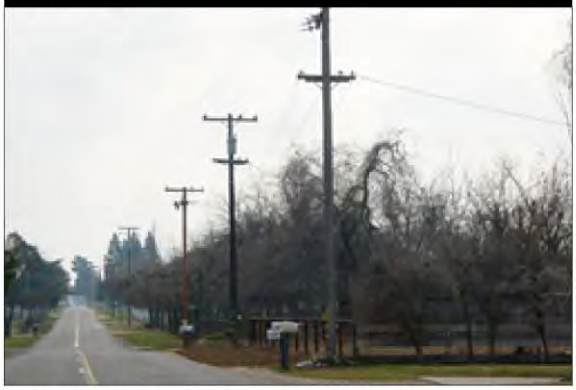

Photo #16: View looking south from Sunnyside Avenue near the intersection with Teague Avenue. Date of photograph: February 12, 2012

SOURCE: 2M Associates 2012 and Panorama Environmental 2012

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topography, the wide disparity of ornamental vegetation and vegetation patterns, and the vividness and lack of integrity of cultural modifications contrasted against the presence of seasonal wetlands and intermittent, ephemeral views of the Sierra Nevada mountains and foothills.

Scenic quality was determined using seven key factors, described below:

1. **Landform**: The general topography is flat. There are minor modifications in topography presented by a northeast-to-southwest drainage system that terminates near the Fresno Metropolitan Flood Control District groundwater recharge basin.
2. **Vegetation**: Vegetation is agricultural, principally consisting of row crops and open grasslands and a wide variety of ornamental plantings associated with rural residential development. Vegetation patterns are not distinctive.
3. **Water**: There are a number of natural and modified seasonal wetlands interspersed throughout the project area. Water levels within the Fresno Metropolitan Flood Control District recharge basin fluctuates significantly depending on the time of the year. The project area also includes Dry Creek and Enterprise Canal as well as manmade ponds.
4. **Color**: The soils in the project area are predominantly sandy clay and loam and are red to light brown in color.
5. **Adjacent Scenery**: The Sierra Nevada foothills and mountains are sometimes in view but are in many cases blocked by vegetation and structures. Seasonal wetlands, Dry Creek, Enterprise Canal, and ponds on private lands are visible within the project area.

6. **Scarcity**: The landscape of the project area is typical of the agricultural lands and rural residential developments found through the immediate region of Fresno County.
7. **Cultural (Manmade) Modifications**: The characteristic landscape is significantly modified. Predominant visual features include:
    - A geometric grid road system
    - Cultivated orchards and other farmed lands
    - Vertical elements including: windmills, power distribution lines approximately 45 feet tall along Sunnyside Avenue and the proposed power line route (see Photos #3, #9, #10, #12, #13, and #14); approximately 45-foot-tall power distribution lines and shorter service lines along Sunnyside Avenue south of Shepherd Avenue (see Photos #15 and #16); and two lines including the approximately 65-foot-tall Kerckhoff-Clovis-Sanger #1 115-kV power line on either side of Copper Avenue (see Photos #1, #2, and #13)
    - The Fresno Metropolitan Flood Control District groundwater recharge basin
    - Fence lines
    - A wide variety of ornamental, typically non-native plantings
    - A wide variety of structures including residences, agricultural storage buildings, and other outbuildings

Scenic Integrity

Scenic integrity relates to the deviations from or alterations to the existing landscape character. Because of the lack of topography and visual predominance of a wide variety of management activities in and surrounding the project area, scenic integrity is low.

General Viewshed/Distance Zones

Views within and around the immediate project area are generally focused on the foreground (0.25 to 0.5 mile from the viewer) with some background views to the north. Views of the Sierra Nevada Mountains to the east are possible when atmospheric conditions permit and where structures and vegetation are not in the way.

Viewer Sensitivity

Viewer sensitivity is a measure of public concern for changes to scenic quality. Numbers of viewers, viewer activity, view duration, distance away from seen objects (foreground versus background), adjacent landscape character, and special planning designations such as scenic routes are used to characterize viewer sensitivity. Sensitive viewers could include motorists, recreationists, and nearby residents.

Motorists

Motorists that may view the proposed project include local residents, agricultural workers, day workers, and light commercial traffic. The project area is visible by motorists from Shepherd, Behymer, Clovis, and Sunnyside Avenues. The number of viewers along these

roadways would be low to moderate throughout the week with higher volumes during commute hours. Due to the undergrounding of the distribution line from the substation to Shepherd Avenue and along Shepherd Avenue, the only portion of the distribution line that would be visible to motorists after project completion would be along Sunnyside Avenue south of Shepherd Avenue. The power line would be visible to motorists along Sunnyside Avenue; however, Sunnyside Avenue terminates at Behymer Avenue and does not provide through traffic to the north. Portions of the substation could be visible from Sunnyside Avenue.

Residents

The residences closest to the proposed project are approximately 50 feet from the proposed power and distribution line alignments. Residents that are able to view the existing 12-kV distribution line along Sunnyside Avenue south of Shepherd Avenue would be able to view the reconductored 21-kV distribution line within this area. The power line would be visible to residents to the west and east of the power line alignment. Due to the partial screening of the substation by existing almond trees, it would not be readily visible to nearby residents during late spring, summer, and early fall. Residents within 1,000 feet of the project are identified on Figures 3.1-6 through 3.1-13.

Recreationists

Recreationists using the trail system along Dry Creek and Enterprise Canal may be able to view portions of the proposed project, particularly construction of the underground distribution lines. The trails are approximately 0.5 mile from the power line and substation and the proposed extensions of Dry Creek and Enterprise Trails would intersect the proposed distribution line alignments.

Scenic Highways

There are no designated scenic highways in or near the project area.

Scenic Vistas

There are no designated scenic vistas or areas (scenic byway, scenic corridor, or similar designations) in or near the project area.

Light and Glare

Light pollution is defined as any adverse effect of artificial light, including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste (IDA 2007). There are no streetlights and few significant light sources in the immediate vicinity of the project area. Existing sources of light and glare that do exist are generally related to residences and outbuildings and traffic on the local road system.

Figure 3.1-6: Sensitive Receptors Map 1

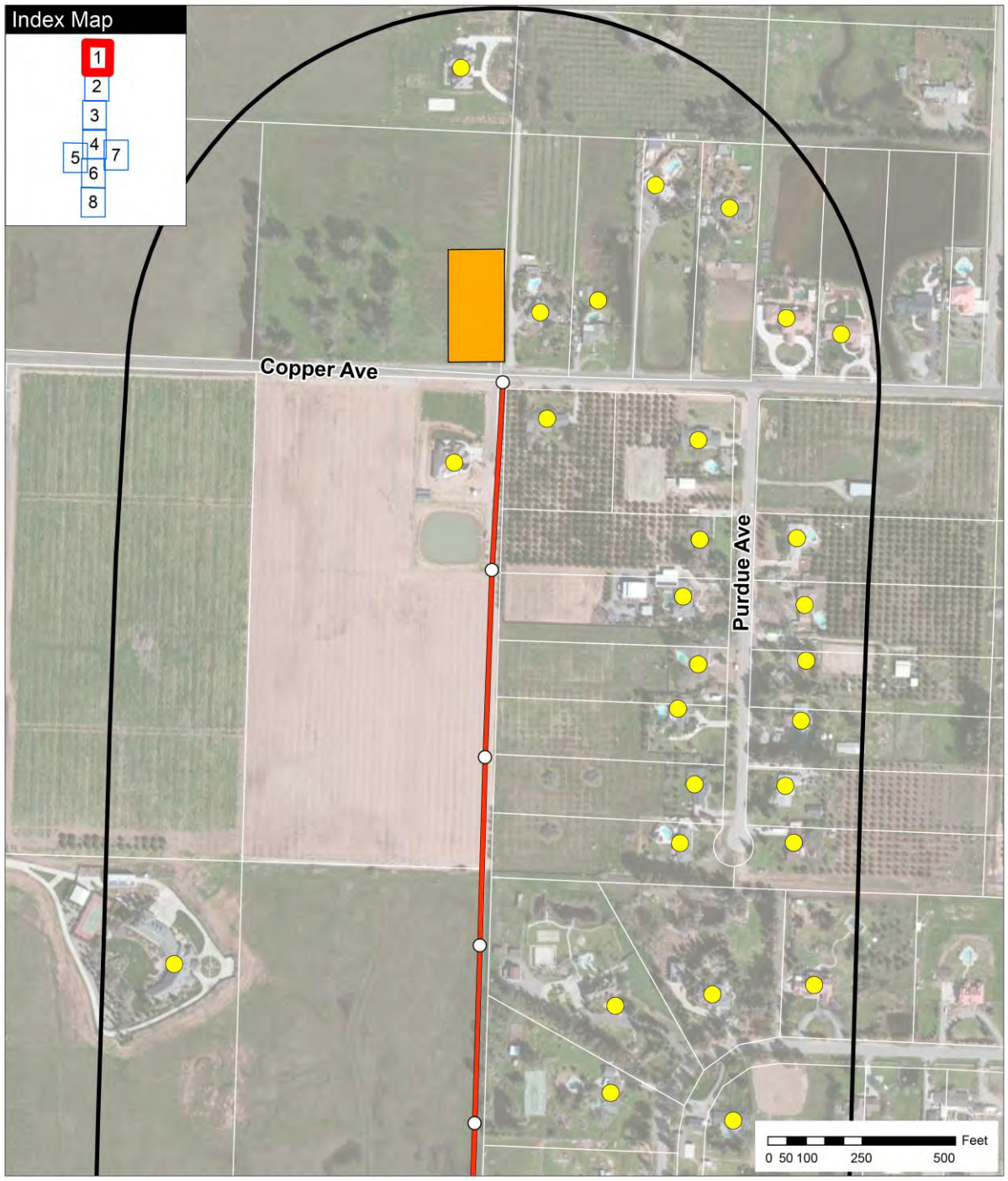


Figure 3.1-7: Sensitive Receptors Map 2

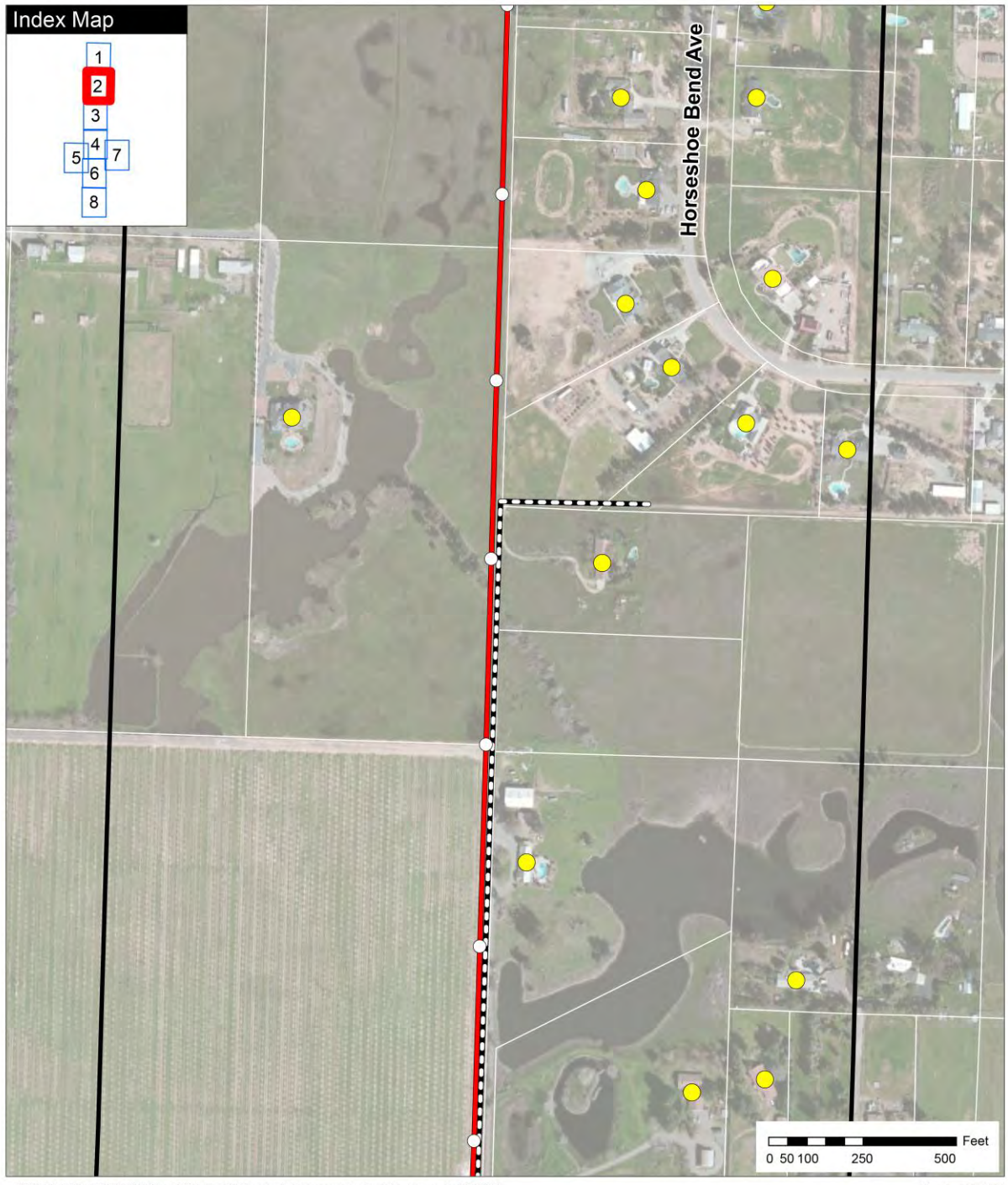


Figure 3.1-8: Sensitive Receptors Map 3

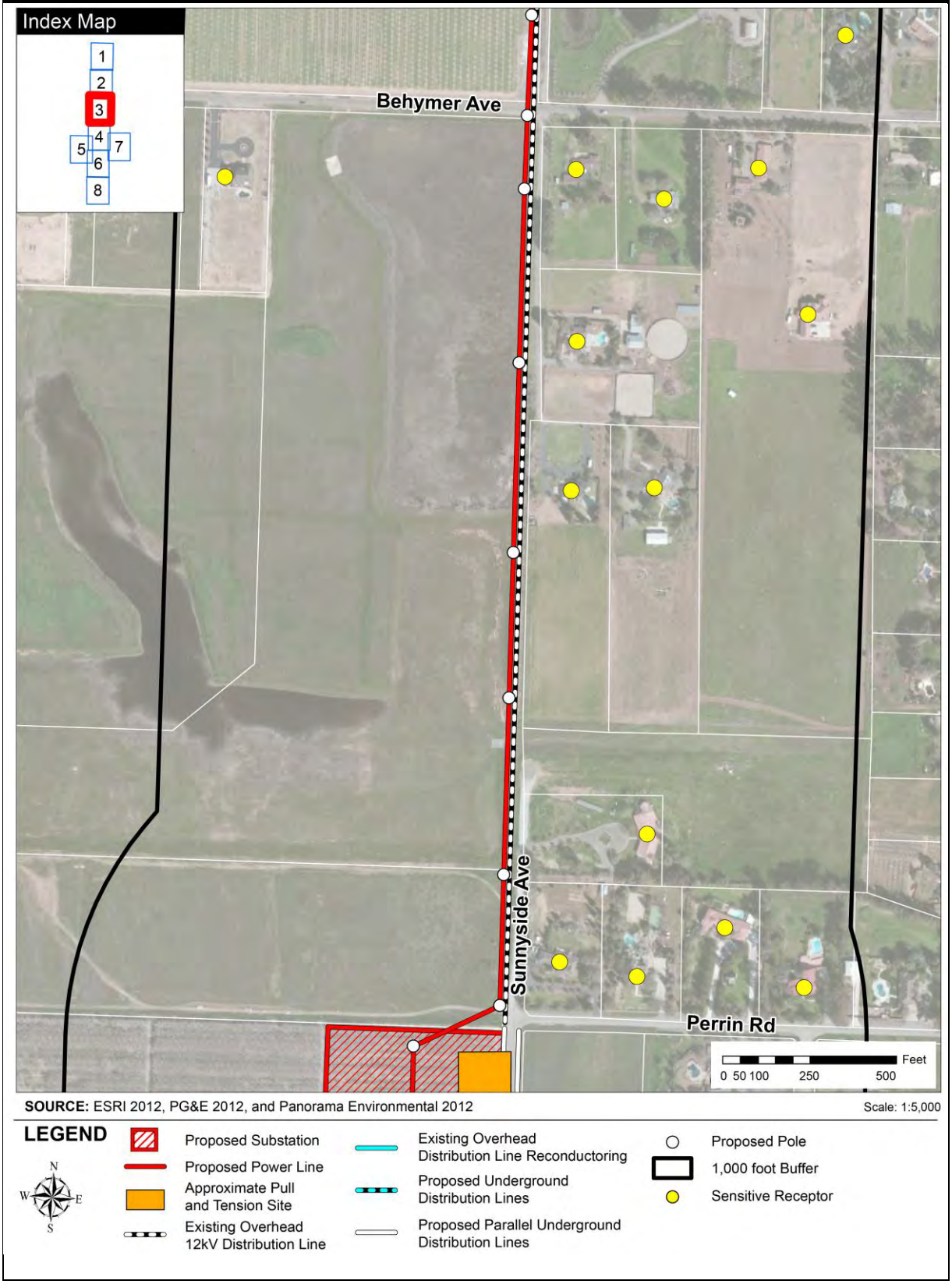


Figure 3.1-9: Sensitive Receptors Map 4

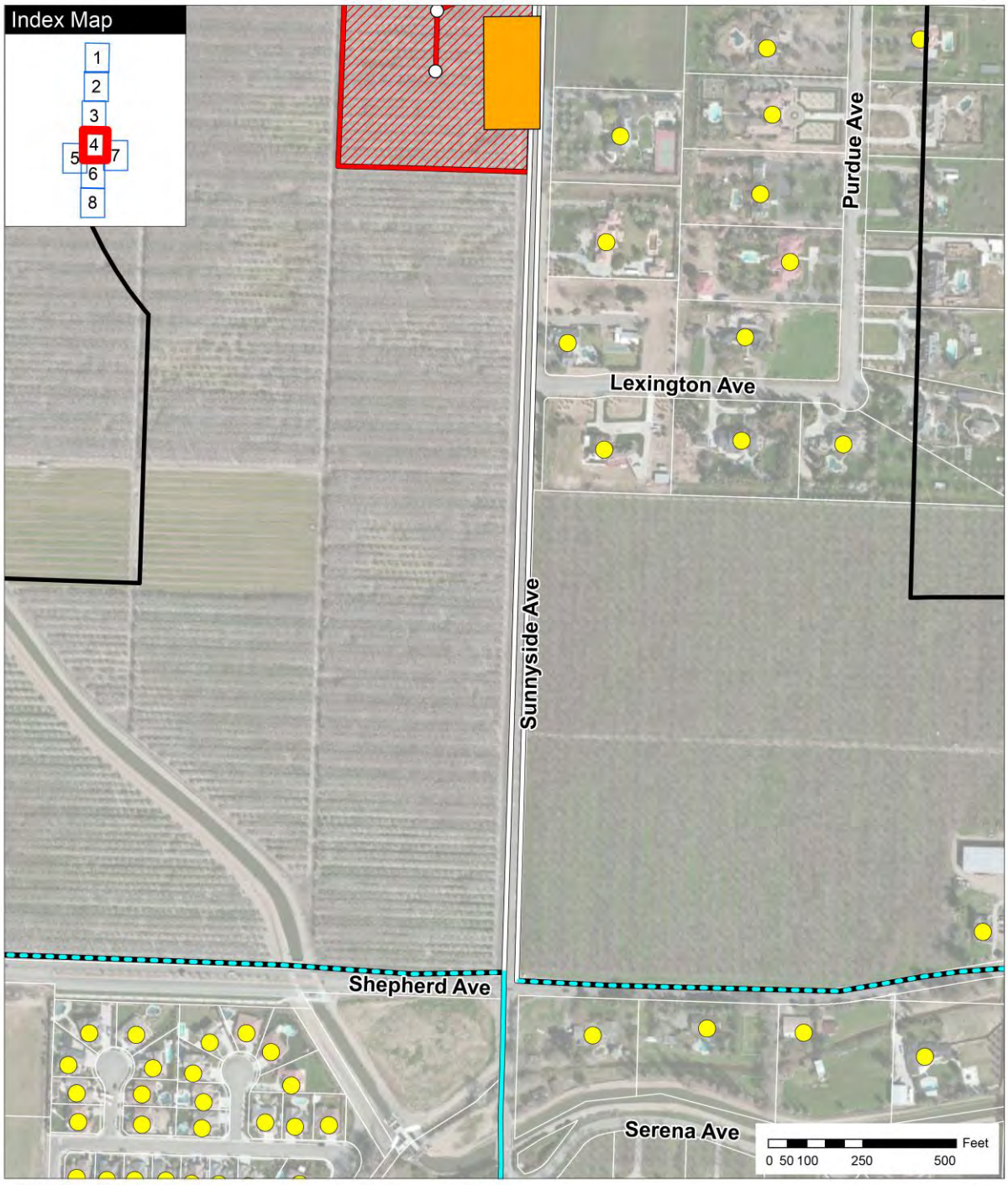


Figure 3.1-10: Sensitive Receptors Map 5

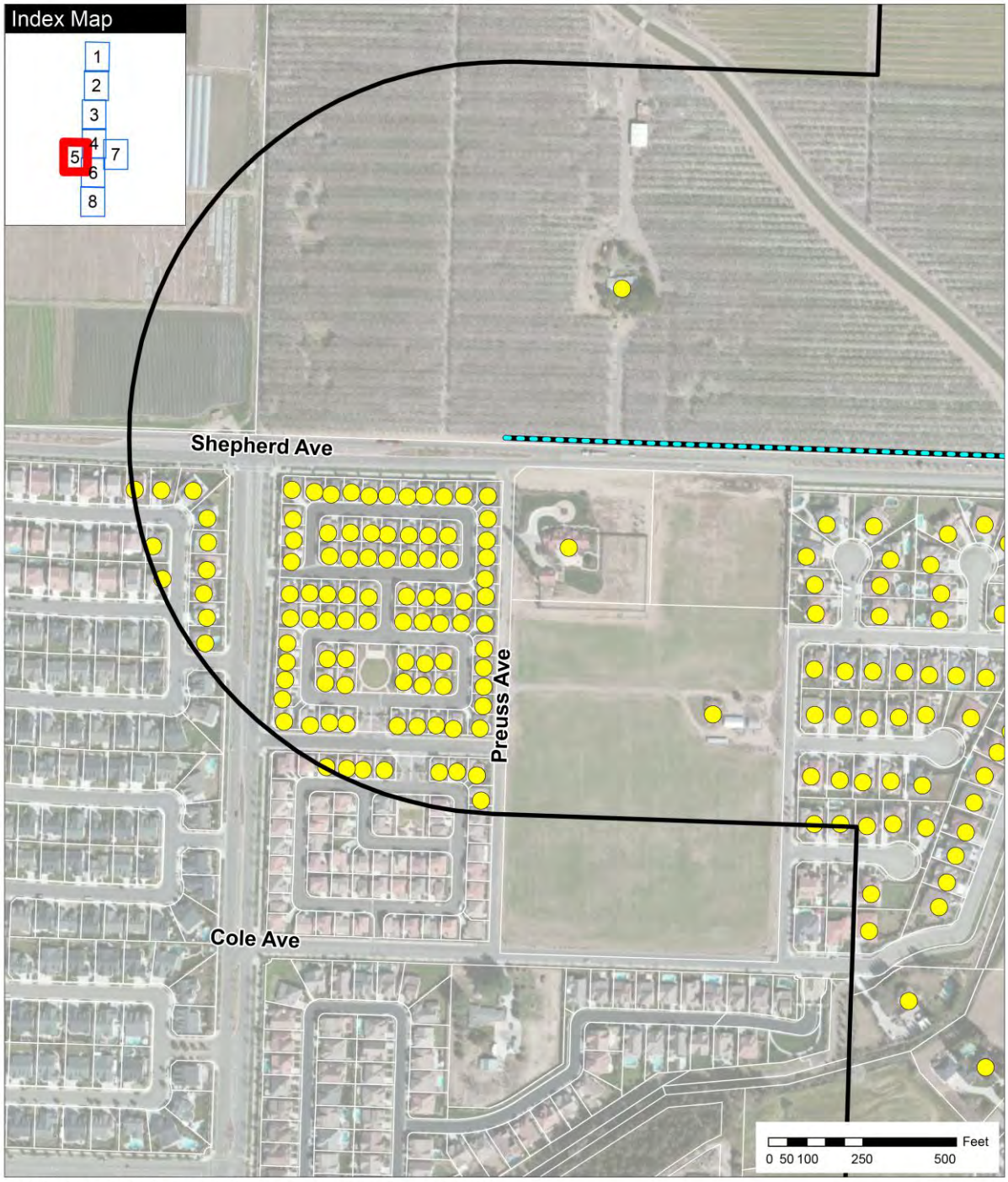


Figure 3.1-11: Sensitive Receptors Map 6

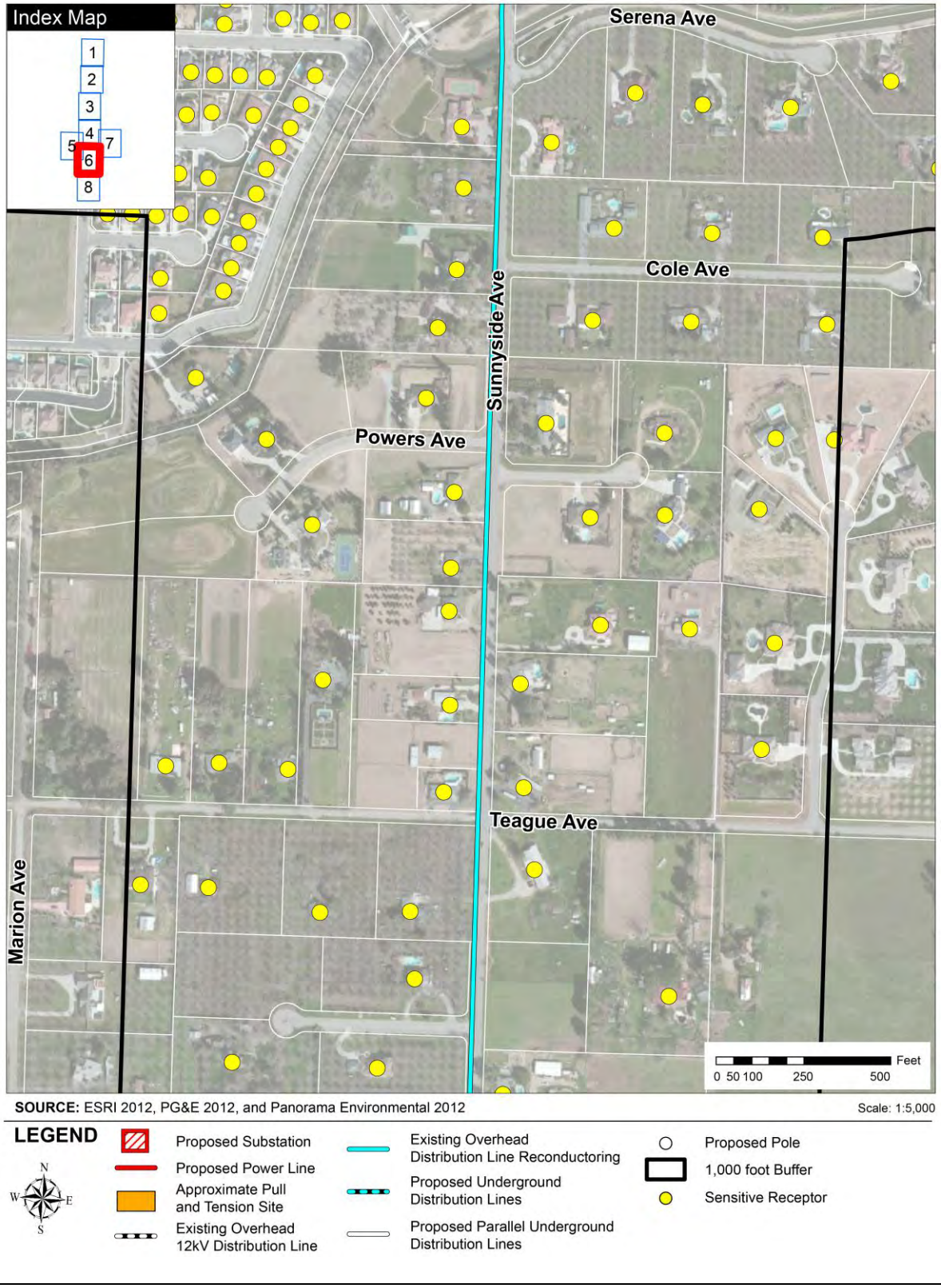


Figure 3.1-12: Sensitive Receptors Map 7

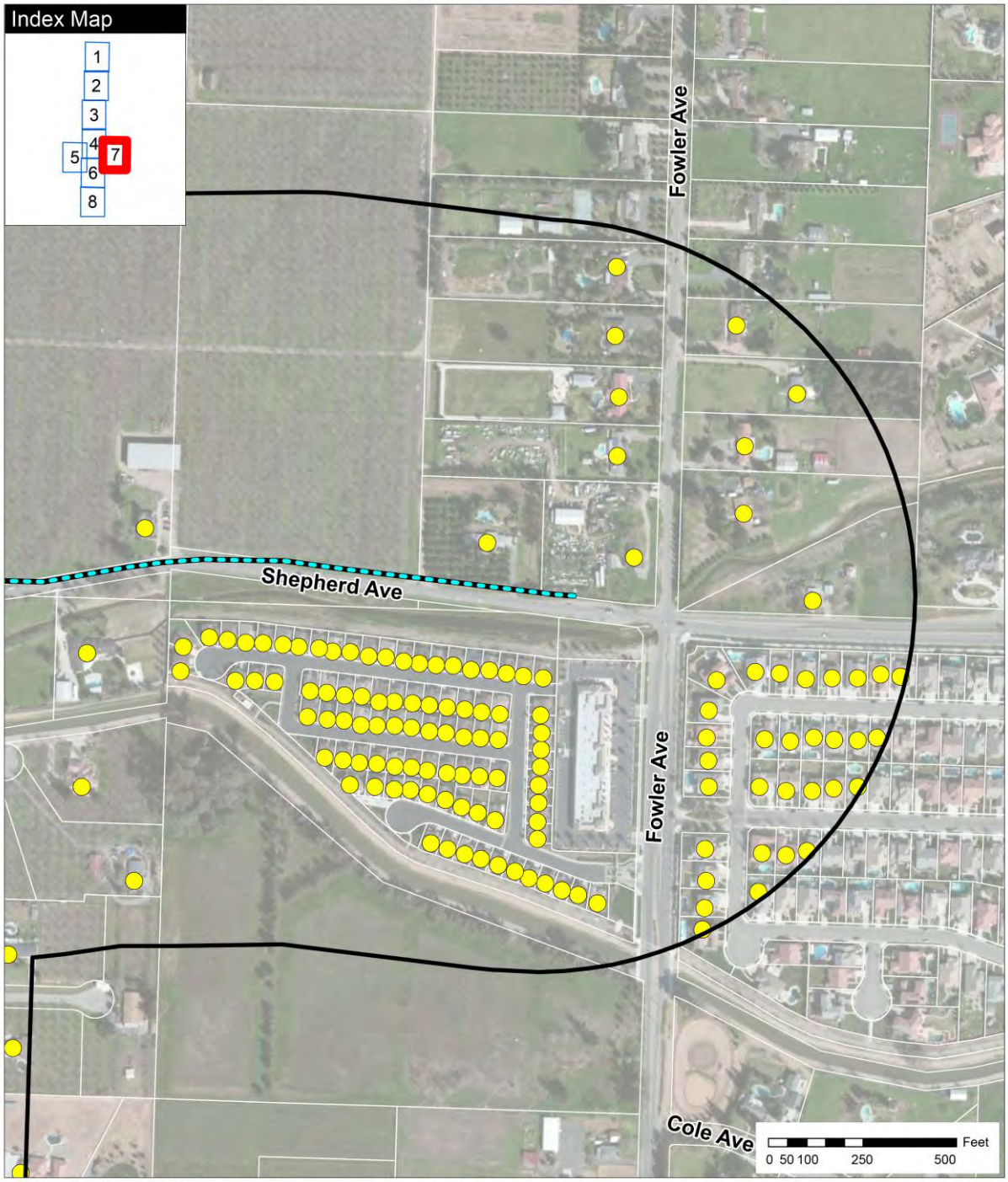
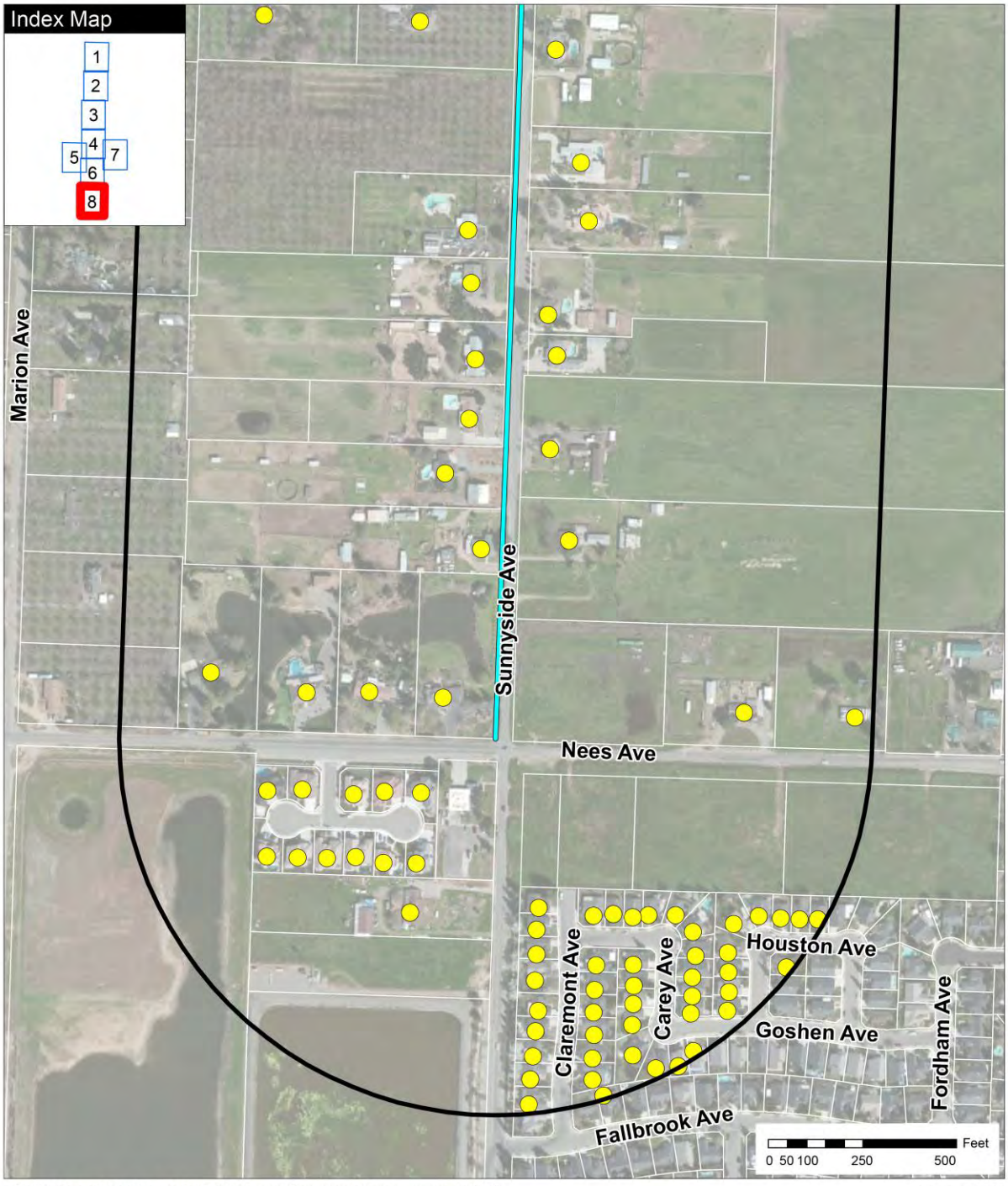


Figure 3.1-13: Sensitive Receptors Map 8



Key Observation Points

Key Observation Points (KOPs) are locations that provide a perspective of the project's visual impacts from area vantage points. They are selected based on their relation to visual resources with varying levels of sensitivity that may be impacted by the proposed project. KOPs typically include locations that are publicly accessible such as along roadways and travel corridors, at key vista points, and near recreational areas. Figure 3.1-14 shows the locations of the KOPs used in the analysis. A total of eight KOPs were selected for the visual analysis. Seven of the KOPs show views of the new power line and substation and one KOP provides a view of the above ground distribution line that would be reconductored to 21-kV.

KOP #1

KOP #1 is located on the south side of E. Copper Avenue, approximately 0.1 mile west of the proposed power line interconnection. West of this KOP is a low-density residential area. The view from KOP #1 is to the power line interconnection at E. Copper Avenue to the southeast. There are views of the existing Kerckhoff-Clovis-Sanger #1 115-kV Power Line from this location. The site is generally rural in character providing views of ruderal vegetation and the rural residences located along E. Copper Avenue. In the background there are views of trees and agricultural areas. This view is typical for a vehicle traveling east along E. Copper Avenue.

KOP #2

KOP #2 is located on the north side of E. Copper Avenue facing the power line interconnection. The view from KOP #2 depicts the proposed power line and adjacent residence from the interconnection location at E. Copper Avenue. The existing Kerckhoff-Clovis-Sanger #1 115-kV Power Line is visible overhead from this location. From this point, the primary view to the south is of a residence and an agricultural field adjacent to the residence. This view would be typical for motorists along E. Copper Avenue.

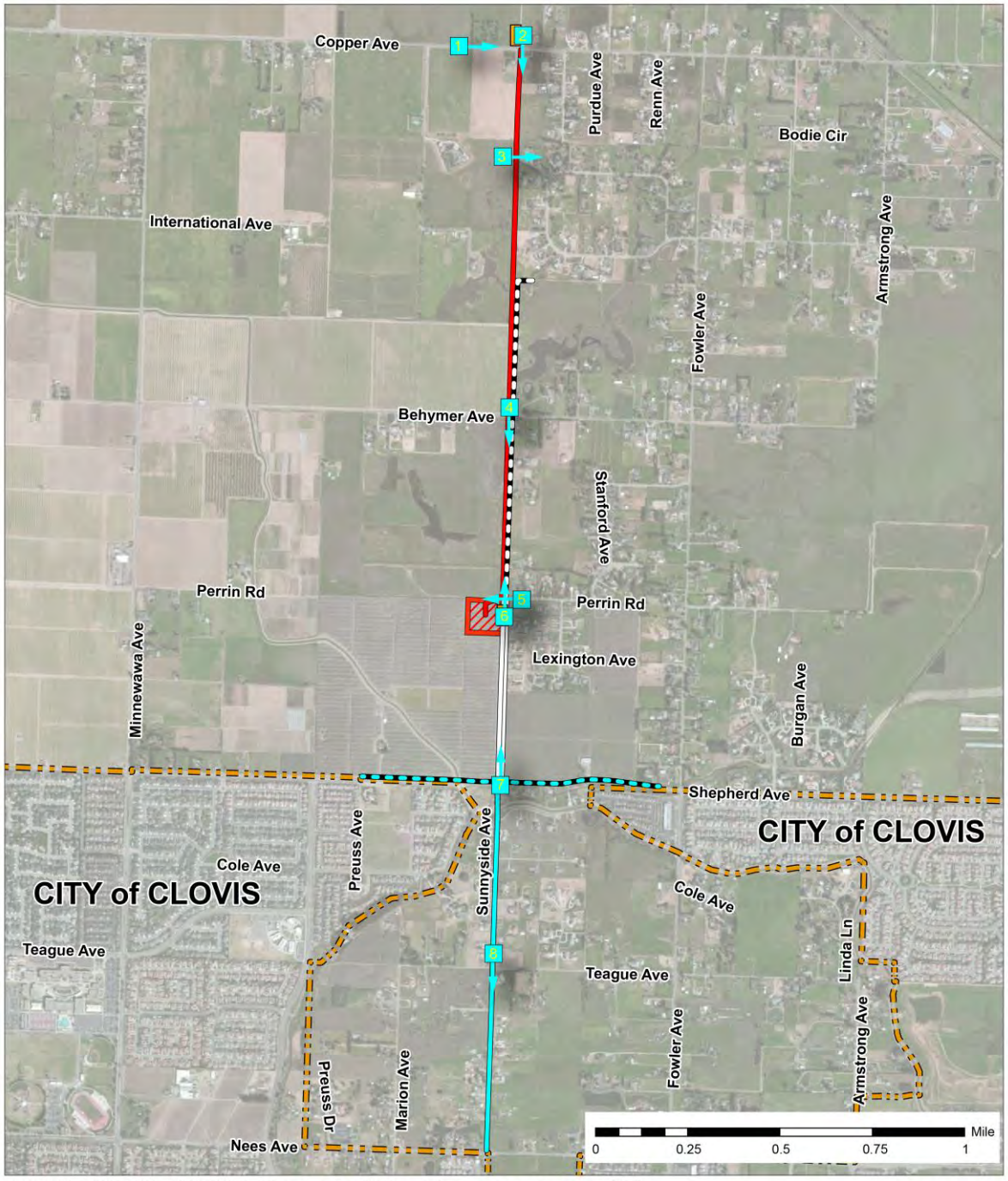
KOP #3

KOP #3 is located between E. Copper Avenue and Behymer Avenue, west of the power line alignment. KOP #3 is located near a residence and this location provides a typical view looking perpendicular to the power line from that residence. In the foreground, low-growing ruderal vegetation allows for open views of the power line route. Behind the power line route are a fence line, rural residences, and surrounding trees that would screen any service utility lines that may be present.

KOP #4

KOP #4 is located at the intersection of Behymer Avenue and Sunnyside Avenue just west of Sunnyside Avenue. KOP #4 provides a representative view of the power line to the south. An open pasture and infiltration/retention basin are visible to the east of Sunnyside Avenue and a fence is viewed parallel to the roadway. The existing 12-kV distribution line, an agricultural field, and trees are visible to the east of the roadway. Views from this KOP would be seen by motorists at Behymer Avenue and Sunnyside Avenue.

Figure 3.1-14: KOP Locations



KOP #5

KOP #5 is located east of Sunnyside Avenue along Perrin Road. This KOP faces the proposed location of the substation, which is currently an almond orchard. The existing 12-kV distribution line is visible along Sunnyside Avenue. Open fields with low-lying vegetation are visible on the east side of Sunnyside Avenue and to the north of the almond orchard. Trees are visible to the north of Perrin Road. The view from this KOP is representative of views that would be seen by motorists traveling west along Perrin Road. Similar views would exist from nearby residences.

KOP #6

KOP #6 is located on the east side of Sunnyside Avenue looking north toward Perrin Road. This KOP view is looking north toward the almond orchard that is the proposed substation location. The almond orchard is located across Sunnyside Avenue from the KOP. The existing 12-kV distribution line is visible along Sunnyside Avenue. Open fields and trees are visible in the background. The view from this KOP is representative of views that would be seen by motorists traveling north along Sunnyside Avenue. Similar views would exist from nearby residences across Sunnyside Avenue from the almond orchard.

KOP #7

KOP #7 is located south of the intersection of Sunnyside Avenue and Shepherd Avenue. KOP #7 was chosen for views of the substation and power line locations to the north. Existing distribution lines are visible along Sunnyside Avenue and Shepherd Avenue. The southeast corner of the almond orchard and the access gate to the almond orchard are also visible to the north. Residential areas are visible to the east. Views from this KOP are seen by motorists traveling along Sunnyside Avenue and Shepherd Avenue.

KOP #8

KOP #8 is located north of the intersection of Teague Avenue and Sunnyside Avenue. KOP #8 depicts views of the aboveground distribution line to the south of the proposed substation. The existing 12-kV distribution line is visible along the west side of Sunnyside Avenue. Residences, as well as associated driveways and maintained vegetation with grass and trees are also visible from this location. The view from this KOP is representative of views that would be seen by motorists along Sunnyside Avenue. Similar views would exist from nearby residences along Sunnyside Avenue.

3.1.2 REGULATORY SETTING

Federal and State

There are no federal or state regulations that pertain to aesthetics.

Local

CPUC is exempt from local regulations. The following description of local regulations related to visual resources is provided for informational purposes and to assist with CEQA review. Goals and policies addressing aesthetics are described below.

Fresno County

The Fresno County General Plan (2000) contains goals and policies intended to conserve, protect, and maintain the scenic quality of Fresno County, including its cultivated farmland, and to discourage development that degrades areas of scenic quality (Goal OS-K). The General Plan also recognizes the need to provide efficient and cost-effective utilities that serve the existing and future needs of people in the unincorporated areas of the County (Goal PF-J). County policies include working with local electric utility companies to design and locate appropriate expansion of electric systems, while minimizing impacts to agriculture and visual impacts on existing and future residents (Policy PF-J.2).

City of Clovis

The jurisdiction of the City of Clovis General Plan and Herndon-Shepherd Specific Plan are bounded on the north by Shepherd Avenue. Chapter 6, Policy 3.2 of the General Plan identifies a park at the intersection of the Dry Creek Canal and Enterprise Canal extending to Shepherd Avenue, a bicycle route along Shepherd Avenue, and a multi-use bicycle trail along both Dry Creek and Enterprise Canal south of Shepherd Avenue.

3.1.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to aesthetics is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
B) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
C) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
D) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

A) Would the project have a substantial adverse effect on a scenic vista?

There are no designated scenic vistas in the project area. The project would have no impact on scenic vistas.

B) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

There are no designated state scenic highways within the viewshed of the project area; therefore, the project would have no impact on scenic resources within a state scenic highway.

C) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Table 3.1-1 summarizes the major characteristics that may be visible to the general public from the public road network within the area.

Table 3.1-1: Project Features

Project Feature	Characteristics	Other Elements
Substation	***Gradient***: generally level with minor grading required to create low-gradient slopes for drainage purposes ***Acres*:** 5 ***Maximum Equipment Height*:** approximately 35 feet for dead-end structures and 15 feet for other facilities ***West and south perimeter*:** 8-foot-high chain-link fence with 1-foot-high barbed wire at property line ***North and east perimeter*:** 10-foot-high pre-fabricated concrete wall of light tan, tan, or brown color set back from property line ***Lighting*:** 10-foot-high galvanized light poles at each corner of the substation with sodium vapor lamps with non-glare bulbs positioned to minimize casting light and/or glare to off-site locations, automatically turned on at night by sensors	Removal of existing almond orchard at most of the substation site Substation to be set back within the almond orchard approximately 55 feet along the east side and 95 feet along the north side of the substation, with three rows of almond trees between the site and the road Facilities include: ▪ Dead-end structures ▪ Transformers (three) ▪ Metal-clad switchgear enclosure (three) ▪ Capacitor banks (two) ▪ Circuit breakers (eight) ▪ Bus, switches, meters, relays, and other associated equipment

Table 3.1-1 *(Continued)*: Project Features

Project Feature	Characteristics	Other Elements
Access Roads from Sunnyside Avenue to the Substation	***Number:*** two located at either end of substation off of Sunnyside Avenue ***Size:*** 20 feet wide, 35 feet long ***Material:*** paved ***Gates:*** 10-foot-high swing gates; type not defined	
Double-circuit, 115-kV Power Line	***Length***: approximately 1.5 miles ***Circuit configuration***: double-circuit, one conductor per phase with three phases for each circuit in a vertical configuration ***Conductor type***: specular	
Power Line Pole	***Poles***: 17 TSPs ***Height***: approximately 90 to 100 feet ***Base diameter***: 3 to 4 feet ***Foundation***: concrete 5 to 6 feet in diameter approximately 1 foot above grade ***Approximate spacing***: 360 feet, and up to 600 feet ***Ground disturbance:*** approximately 50-foot radius at each pole base	Existing distribution line poles would be removed and the line would be combined as under-build with the new power line
Drop-down Pole	***Poles***: one drop-down poles ***Height***: approximately 65 feet ***Base diameter***: 3 to 4 feet ***Foundation***: 5 to 6 feet in diameter ***Ground disturbance:*** approximately 50-foot radius at each pole base	
Temporary Laydown Areas/Pull Sites	Laydown area and southern pull site located within proposed substation site Northern pull site of approximately 1 acre located in agricultural field on north side of East Copper Avenue	Up to 18 in-ground splice boxes would be installed; the in-ground splice boxes would be 5.5 feet by 9.5 feet in dimensions and would be installed approximately level with the ground
Distribution Lines (underground)	***Trench Size:*** 18 inches wide and 42 inches deep	

Table 3.1-1 *(Continued)*: Project Features		
Project Feature	**Characteristics**	**Other Elements**
	Length: 15,200 feet ***Ground disturbance:*** 14 acres	
Reconductored Distribution Line (aboveground)	***Poles***: 30 wood poles ***Height***: approximately 43 feet above ground (50-foot total pole height) ***Length:*** approximately 1 mile ***Approximate spacing***: ***Circuit configuration***: three-phase 21-kV (four conductors) ***Ground disturbance:*** approximately 40 feet by 100 feet at each pole site	Existing distribution line poles would be removed and replaced by the new wood poles

Construction. Construction would be conducted between the hours of 6:00 a.m. and 9:00 p.m. on weekdays and between 7:00 a.m. and 5:00 p.m. on weekends, and would last for approximately 12 months. Construction impacts would be noticeable to area residents and motorists along the local road system. Construction activities that may be seen include:

- Removal of vegetation at the proposed substation site and other work sites
- Removal of power poles that would no longer be used after construction of the proposed project
- Open trenches and excavated material
- Temporary construction signs and workers/flaggers
- Temporary outdoor storage of materials, construction and office supply trailers, and temporary security fencing
- Large pieces of equipment used for constructing substation, digging trenches, augering holes for foundations, transporting and lifting TSP poles, transporting and installing wood poles, hauling concrete, water trucks spraying water to control dust, and assorted construction vehicles
- Temporary construction-limit fencing

Construction materials for the substation and power and distribution lines would be staged within the boundaries of the proposed substation facility. The materials would be partially screened within the substation location by the three rows of almond trees that would be maintained as a part of the project. The trees are deciduous and would provide less screening in the winter months. The staging and storage of materials would not result in significant impacts to visual resources.

Short-term impacts to visual resources would occur during construction. It is expected that motorists and nearby residents along area roadways would be able to view construction of

the underground distribution line. Motorists would observe open trenches and drilling activities along Sunnyside Avenue and Shepherd Avenue. The distribution line would be drilled beneath Dry Creek and Enterprise Canal. Recreationists using the existing pathways along Dry Creek and Enterprise Canal could be able to view drilling operations. For construction of the power line and aboveground distribution line, nearby residents and motorists would be able to view the removal of the existing poles as well as site preparation and installation of the new poles. The approximately 1-acre pull and tension site located north of E. Copper Avenue would be visible to motorists along Copper Avenue and nearby residents.

The visual impacts of construction would be unavoidable and considered temporary (approximately 12 months). Standard construction methods would be followed to minimize the visual impact caused by construction. Fugitive dust from construction may be noticed immediately adjacent to the project area limits; watering for dust control is proposed as part of the project.

The applicant has proposed mitigation measures that would reduce the visual impacts associated with construction. Applicant-proposed mitigation measures APM Visual-1, APM Air-3 (refer to Section 3.3.2), AMM 10 (refer to Section 3.5.2), and APM Geo-1/APM WQ-1 (refer to Section 3.7.2) would effectively mitigate potential visual impacts created by construction-related ground disturbance to a less-than-significant level.

> **APM Visual-1**. Construct a prefabricated concrete wall on the north and east sides of the substation and replanting as necessary to leave three rows of trees on the east and north sides of the substation to minimize contrast with the existing visual character of the area. As almond trees die, or are impacted by road widening along Sunnyside and Perrin Avenues, the trees will be replaced with compatible vegetation.

Operation and Maintenance. Figures 3.1-15 through 3.1-22 present views from the eight KOPs as well as simulations of the completed facilities with mitigation. The KOP figures provide representative views of the project facilities. Table 3.1-2 summarizes impacts of the proposed project as seen from the KOPs.

Approximately eight residences near the Perrin Road and Sunnyside Avenue intersection would experience visual impacts similar to those presented for KOP #5 and KOP #6. Views from these residences of project facilities are screened to varying degrees by existing landscaping. Approximately 23 existing residences could have immediate foreground (up to 0.25-mile) views of the proposed power line and may experience visual impacts similar to those presented from KOP #1, KOP #2, KOP #3, and KOP #4. However, as with the proposed substation, views from many of these residences to the power line would be filtered or effectively screened to varying degrees by existing residential landscaping. Approximately eight residences near the Perrin Road and Sunnyside Avenue intersection would experience visual impacts similar to those presented for KOP #5.

Table 3.1-2: Description of KOPs

KOP # and Photo Point Reference	Description	View/Duration of View	Contrast and Impact Analysis
KOP #1: Looking east along E. Copper Avenue to the interconnection point of the power line with the Kerckhoff-Clovis-Sanger #1 115-kV Power Line along E. E. Copper Avenue (Figure 3.1-15)	Views along E. Copper Avenue traveling east are restricted by residential development until within 0.5 mile of the power line interconnection point. Travelers will have foreground views of power line poles and circuits south of E. Copper Avenue. Views traveling west are restricted by existing residential development and ornamental plantings and would not be evident until adjacent to the power line interconnect point.	Views along E. Copper Avenue traveling east would last approximately 32 to 40 seconds if traveling at speeds of 45 to 55 mph.	There would be no discernable change to existing patterns or textures presented by the proposed project facilities. The scale, form, and color of the power line poles and specular circuits would vary from existing power lines. Change in contrast levels would be low to moderate as seen from a distance as one approaches the power line crossing. The impact would be less than significant.
KOP #2: Looking south from E. Copper Avenue along the proposed power line alignment (Figure 3.1-16)	The location is across E. Copper Avenue from the interconnection of the power line to the Kerckhoff-Clovis-Sanger #1 115-kV Power Line. The KOP is located approximately 75 feet from the proposed power pole at E. Copper Avenue. The area is a low-density residential area. The view shows an existing residence and orchard located adjacent to the proposed power line.	Adjacent residents along E. Copper Avenue would have a permanent view of the power line and new power poles. Views of the power line and power poles from nearby residents along North Purdue Avenue would be restricted by vegetation and landscaping.	The new power line and poles would be readily visible to the adjacent residents. The proposed power line poles would be slightly larger than the poles along the Kerckhoff-Clovis-Sanger #1 115-kV Power Line. The change in contrast levels due to the additional power line and power poles would be moderate for adjacent residents. Because the total area (approximately 3- to 4-foot radius) occupied by the poles would be minimal, the poles would not obstruct views of the

Table 3.1-2 *(Continued)*: Description of KOPs

KOP # and Photo Point Reference	Description	View/Duration of View	Contrast and Impact Analysis
			background scenery. The impact to views from this point would be less than significant.
KOP #3: Between E. Copper Avenue and Behymer Avenue looking east perpendicular to the proposed power line alignment (Figure 3.1-17)	Scattered residences located to the west of this viewpoint would have foreground views of the proposed power line poles and circuits between E. Copper Avenue and Behymer Avenue.	Residents between E. Copper Avenue and Behymer Avenue would have a permanent view of the new power line and power poles.	There would be a discernable change to existing patterns or textures presented by the project facilities. With a skyline backdrop, new power poles and circuits would be noticeable where there are none now. The scale, form, and color of the power poles and specular circuits would vary from existing power distribution lines. Change in contrast levels would be moderate as seen in the immediate foreground, decreasing in intensity and scale with distance. The impact would be adverse but not significant due to the limited number of residences with views, the intervening vegetation for residences east of the power line, the limited number of poles visible, and the fact that the poles and lines would not block any distant views.
KOP #4: View looking south at intersection of	Travelers moving east along Behymer Avenue would have direct foreground views of the proposed power line	Views along Behymer Avenue traveling east would last for approximately 65 to 80 seconds if travelling at	There would be no discernable change to existing patterns or textures presented by the project facilities. The

Table 3.1-2 *(Continued)*: Description of KOPs

KOP # and Photo Point Reference	Description	View/Duration of View	Contrast and Impact Analysis
Behymer Avenue with proposed power line route (Figure 3.1-18)	poles and circuits on either side of Behymer Avenue for approximately 1 mile, given current land use practices. Views traveling west are restricted by existing residential development and ornamental plantings. The new facilities would not be evident until directly at the proposed power line crossing.	a speed of 45 to 55 mph.	scale, form, and color of the power poles and specular circuits would vary from existing power distribution lines. Change in contrast levels would be low to moderate as seen from a distance as one approaches the power line crossing where the ever-increasing scale and skylining of the poles and circuits would draw attention. The view to the south looks along generally undeveloped, open lands and across a large water retention basin. The substation is located 0.5 to 1 mile away and would not be readily visible due to screening from vegetation. The broad openness from this KOP allows for extended views of the power poles and circuits. The existing characteristic landscape backdrop includes a variety of residences presenting a high visual absorption capacity. The impact would be adverse but not significant due to the limited number of residences with views, the intervening vegetation, and the limited number of poles visible.

Table 3.1-2 *(Continued)*: Description of KOPs

KOP # and Photo Point Reference	Description	View/Duration of View	Contrast and Impact Analysis
KOP #5: Looking west from Perrin Avenue to Sunnyside Avenue and substation site (Figure 3.1-19)	Travelers along Perrin Road traveling west would have direct views of the proposed substation, its north entrance, the drop-down pole, one power pole, and related circuits. The solid fence would be seen underneath and through the almond trees. The majority of substation facilities potentially visible above the wall would effectively be screened by the almond tree canopy. Residents located directly across N. Sunnyside Avenue would have views of the substation between the almond tree canopy and above the concrete wall. Views of the substation from adjacent residents along N. Sunnyside Avenue would be screened by the almond tree canopy.	Views along Perrin Road traveling west would last approximately 30 to 45 seconds if travelling at a speed of 20 to 30 mph increasing in visibility closer to the proposed substation.	While the proposed substation would be mostly screened in the summer months by almond trees and perimeter walls, the north entrance, drop-down pole, and power line pole would present a moderate contrast in form, line, color, texture, pattern, and scale of the existing agricultural landscape and electrical distribution line. The substation would be somewhat more visible in the winter months because almond trees are deciduous. There would be direct views through the north entrance to substation facilities. The drop-down pole and one power pole would be readily evident above the orchard trees contrasting with the skyline. The impact would be adverse but not significant due to the limited number of residences with views, and the screening of views into the substation by vegetation and a concrete wall.
KOP #6: Looking north from Sunnyside	Travelers moving to the north along Sunnyside Avenue from Shepherd	From this point, travelers along Sunnyside Avenue	The forms and colors of substation facilities would be new elements

Table 3.1-2 *(Continued)*: Description of KOPs

KOP # and Photo Point Reference	Description	View/Duration of View	Contrast and Impact Analysis
Avenue south of the intersection with Perrin Road (Figure 3.1-20)	Avenue would have foreground views of the substation, both entrances, and the drop-down pole. The power line would be seen parallel to the direction of view. Residents located directly across N. Sunnyside Avenue would have views of the substation between the almond tree canopy and above the concrete wall. Views of the substation from adjacent residences along N. Sunnyside Avenue would be screened by the almond tree canopy for most of the year.	moving north from Shepherd Avenue would have direct views of the substation area for approximately 60 to 90 seconds if travelling at a speed of 20 to 30 mph, increasing in visibility closer to the substation.	in the landscape. The color of galvanized poles and specular circuits would vary from the existing electric distribution wood poles and circuits. The scale of the proposed power line poles would be larger than that of the existing poles they would replace. Change in contrast levels would be low. The structures to be located at the northeast corner of the substation would be the most visible project elements. These include the drop-down pole and the first few power line poles and circuits. Right-angle views directly into the substation through the entrance gates would be possible. Residents directly across Sunnyside Avenue from the substation would have views of the substation above the concrete wall and between almond tree canopies. The majority of residents along Sunnyside Avenue would have obstructed views of the substation facilities due to the almond trees that would be retained along the east and north sides of the

Table 3.1-2 *(Continued)*: Description of KOPs

KOP # and Photo Point Reference	Description	View/Duration of View	Contrast and Impact Analysis
			substation and existing vegetation on their own properties. The impact would be adverse but not significant due to the limited number of residences with views, and the screening of the substation by vegetation and a concrete wall. Views to the substation from traveling north on Sunnyside Avenue would be screened by existing orchard trees. The trees are located on private property and there is no assurance that these lands would remain in orchard production in the short or long term. If removed, the south side of the substation facilities, including lighting fixtures, would be openly visible. The texture, lines, and forms of facilities would contrast with the characteristic landscape with taller facilities skylined. The impact to foreground views as seen from Sunnyside Avenue traveling north and, to a lesser extent, from residences located along Sunnyside Avenue south of the substation site would be potentially moderate if the existing orchard trees are

Table 3.1-2 *(Continued)*: Description of KOPs

KOP # and Photo Point Reference	Description	View/Duration of View	Contrast and Impact Analysis
			removed or replaced with another agricultural crop that does not screen the site. The impact would be adverse, but less than significant.
KOP #7: Looking north from intersection of Sunnyside Avenue with Shepherd Avenue to substation site (Figure 3.1-21)	Travelers along Shepherd Avenue traveling in either direction would have a perpendicular view to the substation site and the power line. Enterprise Canal and developed recreational trail adjacent to its banks are located just south of the KOP. The substation is approximately 0.4 mile north of the KOP.	Traveler views to the substation area as seen from Shepherd Avenue would be limited to the time it takes to stop at the intersection.	There would be no short-term discernable change to existing forms, patterns, colors or textures presented by the project facilities as seen from Shepherd Avenue. The impact would be less than significant. The ground plane setting is dominated by almond orchards and fence lines. Existing electric distribution poles and lines are skylined. From a 0.4-mile distance, the substation would not be evident and the proposed power line would be similar to the existing distribution lines in the background view. The impact to current conditions would be less than significant. Should the almond trees located on private property between Shepherd Avenue and the substation be removed, views to the south side of the substation would be openly visible in the foreground from

Table 3.1-2 *(Continued)*: Description of KOPs

KOP # and Photo Point Reference	Description	View/Duration of View	Contrast and Impact Analysis
			Shepherd Avenue. The impact to foreground views as seen from Shepherd Avenue would be moderate. The impact would be less than significant.
KOP#8: Looking south along Sunnyside Avenue from the intersection of Teague Avenue and Sunnyside Avenue (Figures 3.1-22)	Travelers along Sunnyside Avenue, south of Shepherd Avenue would have views of the reconductored distribution line. Residents along Sunnyside Avenue would also view the reconductored distribution line.	Travelers along Sunnyside Avenue would have direct views of the reconductored distribution line for approximately 80 to 120 seconds if travelling at the posted speed of 45 mph and depending on the time spent at the four-way stop intersection of Sunnyside and Teague.	There would be no discernable change to existing forms, patterns, colors, or textures presented by the proposed 21-kV distribution line. The existing 12-kV distribution line wood poles would be replaced by new wood poles that would be similar in form, structure, and pattern. The new wood poles would be approximately 10 feet taller than the existing wood poles. However, this would not present a discernible change to views from residents or motorists. The impact would be less than significant.

Figure 3.1-15: KOP #1 Existing and Simulated View

Existing

Simulated

SOURCE: PG&E 2012 and Panorama Environmental 2012

PANORAMA ENVIRONMENTAL, INC.

Figure 3.1-16: KOP #2 Existing and Simulated View

Existing

Simulated

SOURCE: PG&E 2012 and Panorama Environmental 2012

PANORAMA ENVIRONMENTAL, INC.

Figure 3.1-17: KOP #3 Existing and Simulated View

Figure 3.1-18: KOP #4 Existing and Simulated View

Existing

Simulated

SOURCE: PG&E 2012 and Panorama Environmental 2012

PANORAMA ENVIRONMENTAL, INC.

Figure 3.1-19: KOP #5 Existing and Simulated View

Figure 3.1-20: KOP #6 Existing and Simulated View

Figure 3.1-21: KOP #7 Existing and Simulated View

Existing

Simulated

SOURCE: PG&E 2012 and Panorama Environmental 2012

PANORAMA ENVIRONMENTAL, INC.

Figure 3.1-22: KOP #8 Existing and Simulated View

The proposed substation and its internal features would mostly be screened (except in winter months) from views from the surrounding road system, except when in close proximity, by the retention of three rows of almond trees and a 10-foot-high solid perimeter wall on the north and east sides of the substation. The existing private orchards on the south and west sides of the proposed substation also would provide screening. Substation elements that would be openly visible include the entrance roads and gates and the drop-down pole seen above the almond trees. Other elements extending above the proposed walls would be screened in whole or in part by the canopy of almond trees; the trees would provide less screening in the winter.

The life expectancy of almond trees can be 25 to 30 years (Boris 2005). In time the trees to be kept by PG&E on the north and east sides of the substation would need to be replanted. This would result in a temporary short-term period where the north and east side walls of the substation and the facilities that protrude above them would be exposed. There is no assurance that the private property on the south and west sides of the substation would continue to operate as orchards over time. The property at E. Copper Avenue adjacent to the power line was recently converted from an almond orchard to a single-family home (Transcon 2011a). The property could be converted to other land uses or low-profile agricultural crops allowed by current County zoning. Therefore, the impact analysis in the table below considers the visual impact with conversion of the orchard.

The power line poles and conductors would be visible from the local road network. They would be part of the existing visual fabric that includes similar poles, though the existing poles are approximately 30 feet lower in height. The important scenic elements, as seen from the local road system, include intermittent views to the seasonal wetlands/ponded lands and the Sierra Nevada mountain range. Most of the views to these features and their setting currently include power lines and would remain unobstructed by the proposed power line.

APM Visual-1 would set the substation back from Sunnyside Avenue to retain orchard trees and include constructing solid walls on two sides to screen the substation from public view. Implementation of APM Visual-1 and the additional mitigation measures defined below would reduce visual impacts of operation and maintenance to a less-than-significant level.

Mitigation Measure Aesthetics-1. The final color of the pre-fabricated concrete walls shall be chosen in consultation with the Fresno County.

Mitigation Measure Aesthetics-2. To reduce the contrast and presence of the substation and related facilities:

- Non-reflective finishes shall be used on all facilities taller than 8 feet.
- Entrance road solid gates shall be a natural wood color.

Mitigation Measure Aesthetics-3. To reduce the contrast and presence of the power line and circuits, PG&E shall use non-specular conductors and galvanized steel TSPs.

D) Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Construction. Construction work would be between 6 a.m. and 9 p.m. For a majority of the year this time period would extend into sunrise and sunset conditions. Lighting from construction crews arriving, beginning work, closing down for the day, and leaving would be incidental and short-term. This would not present a significant impact to nighttime views.

Operation and Maintenance. Implementation of Mitigation Measures Aesthetics-2 and Aesthetics-3 would reduce potential glare impacts associated with project O&M to a less-than-significant level.

There is relative darkness within the surrounding agricultural and residential lands. The night sky view is somewhat diminished by the close proximity of the project area to the urban areas of Clovis and Fresno, which provide some light. The project includes the installation of security lighting at the corners of the substation property. The new lighting would create a new source of light that could be visible from the neighborhood and could reduce the contrast and visibility of the night sky. This impact is potentially significant in the currently agricultural area.

Implementation of APM Visual-2 would reduce night lighting impacts associated with project O&M to a less-than-significant level.

> **APM Visual-2.** Security lighting will consist of sodium vapor lamps and all exterior lighting will use non-glare light bulbs, designed and positioned to minimize casting light and/or glare to off-site locations. Security lighting will be designed at the substation in a way such that all lighting is directed inwards. In addition, all exterior lighting will be hooded to reduce light pollution.

3.2 AGRICULTURE AND FORESTRY RESOURCES

3.2.1 ENVIRONMENTAL SETTING

Regional

Fresno County has historically been California's top agricultural-producing county (California Department of Food and Agriculture [CDFA] 2010). Agriculture continues to be an important part of the local economy and agricultural use is the dominant land use in the County. In 2009, the total gross production value of Fresno County agricultural commodities was approximately 5.4 billion dollars. The most valuable crops for Fresno County include grapes, tomatoes, poultry, almonds, and cattle and calves (Fresno County 2009).

Local

The Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency Department of Conservation (CDC) rates land according to soil quality, irrigation status, and current land use. The project area includes areas designated as Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, or Unique Farmland, as shown in Figure 3.2-1. Definitions of the designations are provided in Table 3.2-1.

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. Several parcels within the project area and the greater study area have current Williamson Act contracts. A few of these parcels are in non-renewal, including the proposed substation parcel. The proposed power line alignment also crosses parcels under Williamson Act contract, some active, and others in a state of non-renewal. CPUC-approved facilities are considered an acceptable use on Williamson Act contract lands, consistent with the requirements of Government Code §51290 *et. seq*.

The existing agricultural operations in the project area include the 5-acre almond orchard, which is classified as Prime Farmland. Approximately 1 mile of the proposed power line would be located adjacent to an existing ROW for a 12-kV distribution line. The ROW for the proposed power line would be 60 feet wide and would cross Farmland of Local Importance and Unique Farmland. The northern end of the power line, 0.5 mile long, would be located in a new ROW through residential lots including land under Williamson Act contract, Farmland of Local Importance, and Unique Farmland. Other agricultural operations occur outside the project area, but are immediately adjacent to the power line alignment. The northern pull and tension site would be located on Prime Farmland under Williamson Act contract.

Forestry Resources

The project area and vicinity does not contain any areas zoned as forest land or timberland. Figure 3.2-2 identifies the zoning within the project area.

Figure 3.2-1: Farmland Designations and Williamson Act Contracts

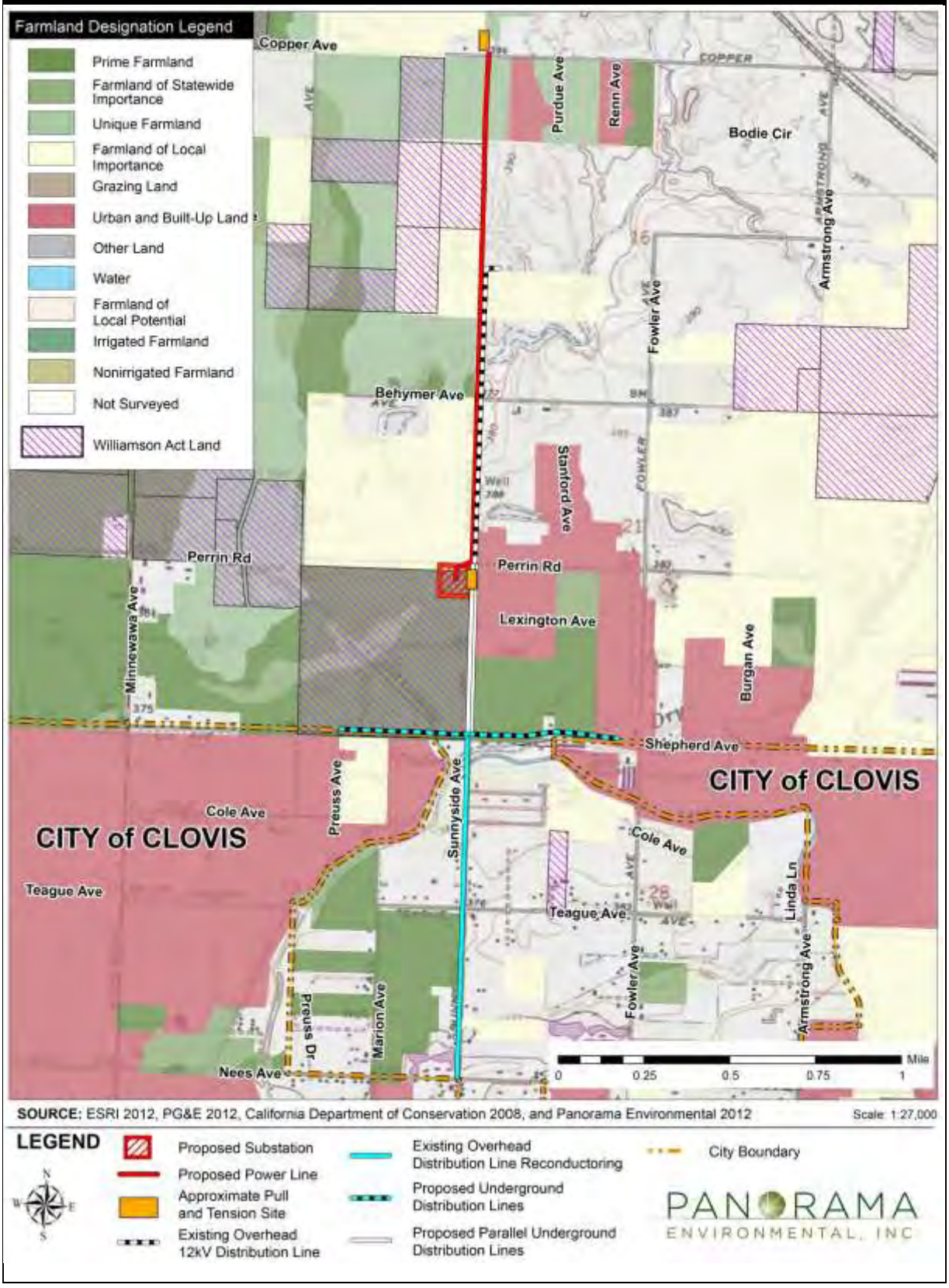


Figure 3.2-2: Zoning Designations

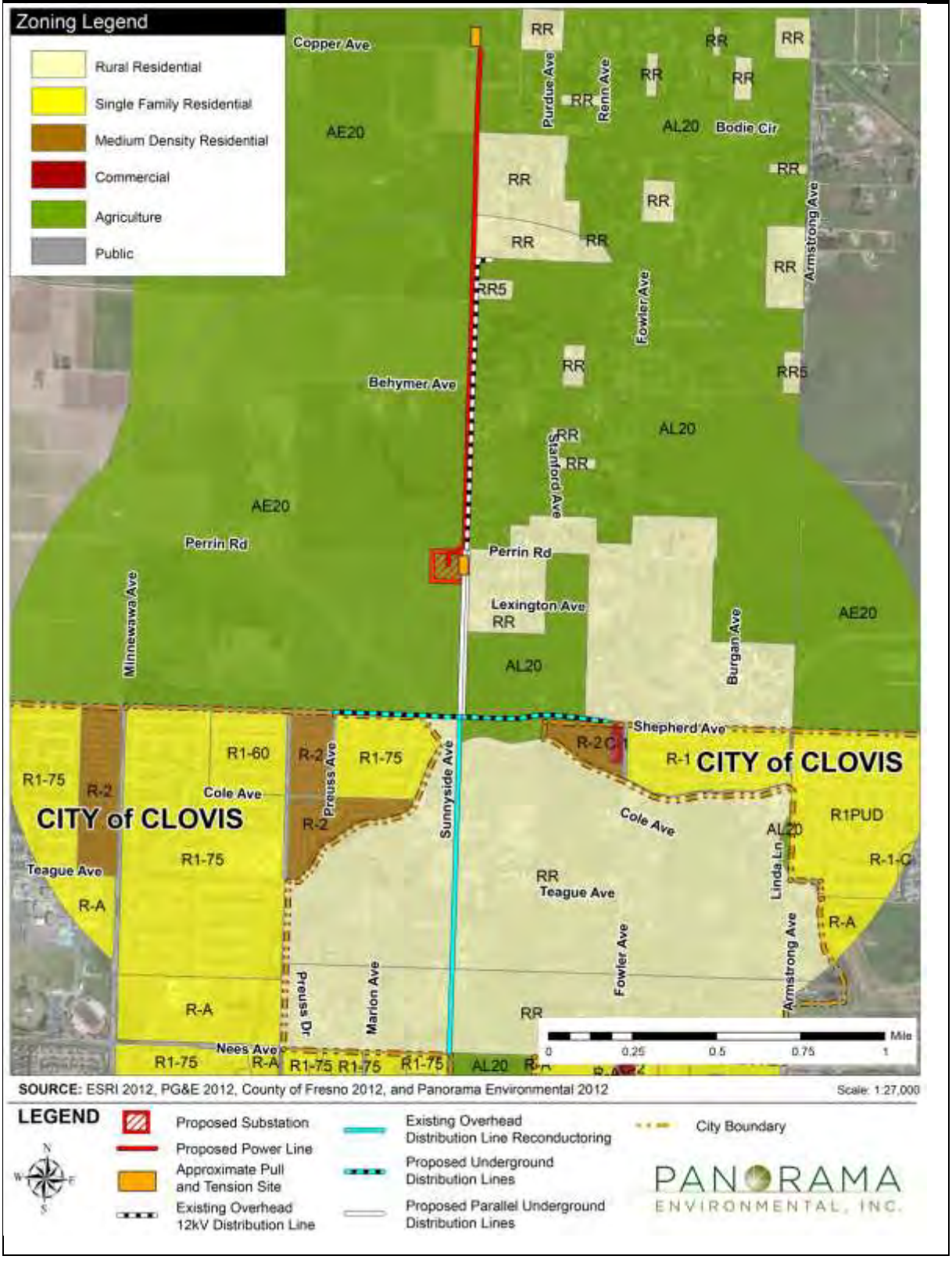


Table 3.2-1: Definitions of Farmland Designations

Designation	Definition
Prime Farmland	Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
Farmland of Statewide Importance	Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
Unique Farmland	Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
Farmland of Local Importance	All farmable lands within Fresno County that do not meet the definitions of Prime, Statewide, or Unique. This includes land that is or has been used for irrigated pasture, dryland farming, confined livestock and dairy, poultry facilities, aquaculture, and grazing land.

SOURCE: CDC 2011

3.2.2 REGULATORY SETTING

Federal

There are no federal laws or regulations for agriculture and forestry resources that are applicable to the proposed project.

State

Williamson Act

The State allows local governments to enter into Williamson Act contracts or Farmland Security Zone (FSZ) contracts in order to preserve agricultural land and provide tax benefits to the landowner, as described above.

The Williamson Act, formally known as the California Land Conservation Act of 1965 (California Government Code §51200– 51297.4, as amended), enables local governments to enter into contracts with private landowners that restrict specific parcels of land to agricultural or related open-space use. In return, these landowners receive property tax assessments that are based upon farming and open space uses rather than other potentially higher tax bases (CDC 2012). An agricultural preserve can consist of no less than the following minimum acreage:

- An area of 10 to 40 acres for prime agricultural land if surrounded by or substantially surrounded by or contiguous to other agricultural preserve lands;
- An area of 40 acres or more for prime agricultural land;
- An area of 40 to 160 acres for non-prime agricultural land if surrounded by or substantially surrounded by or contiguous to other agricultural preserve lands; and
- An area of 160 acres or more for non-prime agricultural land, provided that in order to meet this requirement, two or more parcels may be combined if they are contiguous and if they are in common ownership or use.

The Williamson Act states that a Board or Council, by resolution, shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Any commercial agricultural use would generally be permitted within any agricultural preserve. Local governments may identify compatible uses permitted with a use permit.

A Williamson Act contract is automatically renewed every year unless non-renewed. A notice of non-renewal begins a 9-year non-renewal period. During the non-renewal period, property taxes gradually increase until, at the end of the 9-year period, the contract is terminated and all land development rights are returned to the landowner.

Local

Fresno County regulates land use through zoning and general plan designations, which specify allowable uses, as well as through general plan policies, described below. California law generally provides that CPUC has paramount siting authority with respect to projects developed by public utilities subject to the jurisdiction of CPUC.

Fresno County

The Fresno County General Plan includes policies related to agriculture. These policies include, but are not limited to, the following:

> **LU-A.2:** The County shall allow by right in areas designated Agriculture activities related to the production of food and fiber and support uses incidental and secondary to the on-site agricultural operation.
>
> **LU-A.3:** The County may allow by discretionary permit in areas designated Agriculture, special agricultural uses and agricultural-related activities, including value-added processing facilities and certain non-agricultural uses. Approval of these and similar uses in areas designated Agriculture shall be subject to the following criteria:
>
> 1. The use shall provide a needed service to the surrounding agricultural area that cannot be provided more efficiently within urban areas or that requires location

in a non-urban area because of unusual site requirements or operational characteristics.

2. The use shall not be sited on productive agricultural lands if less productive land is available in the vicinity.
3. The operational or physical characteristics of the use shall not have a detrimental impact on water resources or the use or management of surrounding properties within at least one-quarter (1/4)-mile radius.
4. A probable workforce shall be located nearby or be readily available.
5. For proposed agricultural commercial center uses the following additional criteria shall apply:
    a. Commercial uses should be clustered in centers instead of single uses.
    b. To minimize proliferation of commercial centers and overlapping of trade areas, commercial centers should be located a minimum of four (4) miles from any existing or approved agricultural or rural residential commercial center or designated commercial area of any city or unincorporated community.
    c. New commercial uses should be located within or adjacent to existing centers.
    d. Sites should be located on a major road serving the surrounding area.
    e. Commercial centers should not encompass more than one-quarter (1/4) mile of road frontage, or one eighth (1/8) mile if both sides of the road are involved, and should not provide potential for developments exceeding ten (10) separate business activities, exclusive of caretakers' residences.
    f. For proposed value-added agricultural processing facilities, the evaluation under criterion "1" above shall consider the service requirements of the use and the capability and capacity of cities and unincorporated communities to provide the required services.
    g. For proposed churches and schools, the evaluation under criterion 1 above shall include consideration of the size of the facility. Such facilities should be no larger than needed to serve the surrounding agricultural community.

6. When approving a discretionary permit for an existing commercial use, the criteria listed above shall apply except for items 2, 5b, 5d, and 5e under criterion LU-A.3.

LU-A.14: The County shall ensure that the review of discretionary permits includes an assessment of the conversion of productive agricultural land and that mitigation is required where appropriate.

3.2.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to agricultural and forestry resources is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☒	☐	☐
B) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
C) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resource Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104 (g))?	☐	☐	☐	☒
D) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
E) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?	☐	☒	☐	☐

A) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to nonagricultural use?

Construction. Construction of the project would result in temporary impacts to 8.2 acres of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) for working areas around TSP poles, the substation, staging areas, and pull and tension sites. Farmland designations are shown in Figure 3.2-1. Temporary and permanent impacts to designated Farmland associated with the proposed project are indicated in Table 3.2-2.

The new power line would be constructed along existing PG&E distribution line ROW and a new 1-mile segment of PG&E ROW. The existing ROW would be expanded from 10 feet to 60 feet. Construction within the power line corridor would be temporary and would disturb an area with a 50-foot radius at each site. The northern pull and tension site would result in approximately 1 acre of temporary impact to Prime Farmland.

The temporary impacts to agricultural land have the potential to temporarily interfere with agricultural operations by temporarily restricting landowner access to the agricultural areas where active construction is taking place. This impact would be approximately 2 days at each pole site, and the agricultural areas that would be impacted are grassland areas that could be accessed around the area of active construction. Fences or irrigation facilities could be damaged by heavy equipment. This impact would be reduced through Mitigation Measure Hydrology-1. These impacts to agriculture would be temporary and less than significant.

Table 3.2-2: Estimated Temporary and Permanent Impacts to Farmland

Project Element	Temporary Impact to Farmland	Permanent Impact to Farmland
Substation	5 acres of Prime Farmland under Williamson Act contract (non-renewal)	5 acres of Prime Farmland under Williamson Act contract (non-renewal)
Power Line Pull and Tension Sites	1 acre of Farmland of Prime Farmland under Williamson Act contract	----
Power Poles	1.6 acres of Farmland of Local Importance 0.6 acre of Unique Farmland 0.8 acre of land under Williamson Act contract	0.01 acre of Prime Farmland 0.01 acre of Unique Farmland 0.01 acre of land under Williamson Act contract
Total Acres	**9.0 acres**	**5.03 acres**

Operation and Maintenance. The proposed project would result in the permanent conversion of approximately 5 acres of designated Farmland for the construction of the substation and TSP poles. Five acres of Prime Farmland would permanently be converted to a nonagricultural use for the substation. There would be 0.03 acre of permanent loss of designated Farmland associated with the new power line poles. The TSP poles would result in the conversion of an area 5-6 feet in diameter at each pole location.

The amount of Prime Farmland that would be converted to nonagricultural land is less than the significance threshold of 10 acres, which is noted in California Government Code §51222 as the size of a parcel large enough to sustain agricultural use in the case of prime

agricultural land. The amount of Farmland of Statewide Importance, Unique Farmland, and non-Prime Williamson Act lands is also less than the significance threshold of 40 acres as defined in California Government Code §51222. The proposed project would, therefore, have a less-than-significant impact through the conversion of approximately 5 acres of Farmland to nonagricultural use.

Operation and Maintenance. Operation and maintenance activities would include routine inspections or as needed under emergency conditions, and would not result in the conversion of Farmland to non-agricultural use. The inspections would not interfere with agricultural operations. No impact would occur.

B) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

Several parcels within the project area have current Williamson Act contracts and the entire project is located within an Exclusive Agricultural District zone designated by Fresno County. The power line would be constructed within an existing PG&E ROW. Within the ROW there are lands that are currently zoned for agricultural use (Table 3.2-2 and Figure 3.2-1), including lands under Williamson Act contract. The substation would be constructed on land that is currently zoned for agricultural use. There would be temporary impacts to lands zoned for agricultural use and lands under Williamson Act contract during construction of the power line, as described above. California Government Code §51238 states that "the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve." Due to the compatible uses of electrical power lines and electric distribution substations, the conflict with existing zoning for agricultural use and Williamson Act contracts would be less than significant.

C) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resource Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104 (g))?

There is no forest land, timberland, or timberland zoned Timberland Production in the project area or in the vicinity of the project. No impacts would occur.

D) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

There is no forest land in the project area or in the vicinity of the project. No impacts would occur.

E) Would the project involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?

The proposed project would convert approximately 5 acres of Farmland to nonagricultural use. PG&E purchased the land for the 5-acre substation from an almond farmer. The remaining acreage within the almond orchard surrounding the substation would continue normal operations. The substation, once built, would not interfere with current agricultural activities, as no water lines or internal roads would be blocked. The proposed project would not result in impacts to the environment that would result in conversion of Farmland to nonagricultural use.

3.3 AIR QUALITY

3.3.1 ENVIRONMENTAL SETTING

Air Basin

The project is located in Fresno County within the San Joaquin Valley Air Basin (SJVAB), which includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and parts of Kern counties. The SJVAB is defined by the Sierra Nevada mountains in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation). Air quality in Fresno County is regulated by EPA, CARB, and the San Joaquin Valley Air Pollution Control District (SJVAPCD). Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

Climate and Meteorology

The climate of the San Joaquin Valley is characterized by long, hot summers and stagnant, foggy, winters. Precipitation is low and temperature inversions are common. During the summer, wind usually originates at the north end of the valley and flows in a south-southeast direction through the valley, through Tehachapi Pass, and into the Southeast Desert Air Basin. During the winter, wind occasionally originates from the south end of the valley and flows in a north-northwest direction. Also during the winter months, the valley experiences light, variable winds, less than 10 mph. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high concentrations of carbon monoxide (CO) and particulate matter 10 micrometers or less (PM_{10}) (SJVAPCD 2002a).

Ambient Air Quality

SJVAPCD has established a network of air quality monitoring sites throughout its jurisdiction to measure concentrations of criteria pollutants. The closest air quality monitoring station to the project area is the Clovis-North Villa station located at 908 N. Villa Avenue in Clovis, approximately 2.5 miles southwest of the proposed substation. Three pollutants – ozone (O_3), particulate matter 10 micrometers or less (PM_{10}), and particulate matter 2.5 micrometers or less ($PM_{2.5}$) – were identified as being in nonattainment status by either the State of California or EPA. PM_{10} was redesignated in 2008 by EPA and is in maintenance status. A summary of these pollutants measured at the Clovis-North Villa monitoring station is presented in Table 3.3-1.

Toxic Air Contaminants

Toxic air contaminants (also referred to as hazardous air pollutants [HAPs]) are air pollutants that may cause adverse health effects, particularly cancer or reproductive harm. SJVAPCD limits emission of and public exposure to HAPs through a number of programs.

Table 3.3-1: Air Quality for Criteria Pollutants, Clovis-North Villa Monitoring Station

Pollutant and Standards	Averaging Time	2009	2010	2011*
O_3 NAAQS: 0.075 ppm, 8-hr CAAQS: 0.09 ppm, 1-hr 0.07 ppm, 8-hr	1-hr maximum	0.119 ppm	0.133 ppm	0.133 ppm
	8-hr maximum	0.105 ppm	0.106 ppm	0.103 ppm
	CAAQS Exceedance Days, 1-hr	33	22	35
	CAAQS Exceedance Days, 8-hr	64	58	74
	NAAQS Exceedance Days, 8-hr	48	39	51
PM_{10} NAAQS: 150 $\mu g/m^3$, 24-hr CAAQS: 50 $\mu g/m^3$, 24-hr 20 $\mu g/ m^3$, annual avg.	24-hr maximum	65.2 $\mu g/m^3$	62.2 $\mu g/m^3$	51.2 $\mu g/m^3$
	CAAQS Exceedance Days	5	8	2
	NAAQS Exceedance Days	-	-	-
$PM_{2.5}$ NAAQS: 35 $\mu g/m^3$, 24-hr 15 $\mu g/m^3$, annual avg. CAAQS: 12 $\mu g/m^3$, annual avg.	24-hr maximum	71 $\mu g/m^3$	75.3 $\mu g/m^3$	49 $\mu g/m^3$
	NAAQS Exceedance Days	26	19	12

Notes:

*Data for 2011 are provisional.

National Ambient Air Quality Standard (NAAQS)

California Ambient Air Quality Standard (CAAQS)

SOURCE: CARB 2012

Sensitive Receptors

Sensitive receptors include children, seniors, sick persons, or people subject to continuous exposure, based on the averaging period for the pollutant. Sensitive receptor locations are facilities such as hospitals, schools, convalescent facilities, or residential areas. There are no

commercial, religious, or public facilities within 1,000 feet of the project. There are 62 residences within 1,000 feet of the proposed power line including 15 residences within 1,000 feet of the proposed substation (Transcon 2010). There are also 413 residences within 1,000 feet of the distribution lines. Figure 3.1-6 through 3.1-13 shows the sensitive receptors within 1,000 feet of the proposed project.

3.3.2 REGULATORY SETTING

Federal

EPA is responsible for implementing the federal Clean Air Act, which involves establishing and reviewing NAAQS and judging the adequacy of State Implementation Plans (SIPs), but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented. EPA has established two types of NAAQS. Primary standards protect public health, whereas secondary standards protect public welfare by including protection against decreased visibility and damage to animals, crops, landscaping, vegetation, or buildings. NAAQSs have been established for six "criteria" pollutants: CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), O_3, particulate matter (PM_{10} and $PM_{2.5}$), and lead. NAAQSs are presented in Table 3.3-1.

State

CARB is responsible for establishing and reviewing state standards, compiling the California SIP and securing approval of the SIP from EPA, conducting research and planning, and identifying toxic air contaminants. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. County or regional air quality management districts are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas. These districts are also responsible for preparing the air quality plans that are required under the federal Clean Air Act and the California Clean Air Act. CARB also establishes CAAQS. CAAQS have been established for ten criteria pollutants including: particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), ozone (O_3), visibility-reducing particles, NO_2, lead, sulfates, hydrogen sulfide (H_2S), CO, and vinyl chloride.

Local

The project would be located within the jurisdiction of SJVAPCD. SJVAPCD regulates air pollutant emissions for all emission sources in the SJVAB, other than motor vehicles. The rules and regulations that follow would apply to the project.

Regulation VIII (Fugitive PM_{10} Prohibitions)

Contains rules developed pursuant to EPA guidance for Serious PM_{10} Nonattainment Areas. Rules included under this regulation limit fugitive PM_{10} emissions from the following sources: construction, demolition, excavation, extraction and other earth-moving activities,

bulk materials handling, carryout and track-out, open areas, paved and unpaved roads, unpaved vehicle/equipment traffic areas, and agricultural sources.

Rule 4102 (Nuisance)

Prohibits the discharge of air contaminants or other materials in quantities that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of any such person or the public.

Rule 9510 (Indirect Source Review)

Requires certain development projects to mitigate exhaust emissions from construction equipment greater than 50 horsepower to 20 percent below statewide average mono-nitrogen oxides (NO_X) emissions and 45 percent below statewide average PM_{10} exhaust emissions. Also requires applicants to reduce baseline emissions of NO_X and PM_{10} emissions associated with operations by 33.3 percent and 50 percent, respectively, over a period of 10 years.

Air Quality Management Plans

SJVAPCD's most recent Air Quality Management Plan for ozone attainment is the 1-hour Extreme Ozone Attainment Demonstration Plan, which was developed in 2004 and approved by EPA on March 8, 2010.

In June 2007, SJVAPCD published the 2007 PM_{10} Maintenance Plan and Request for Redesignation. This plan demonstrates how PM_{10} attainment in the SJVAB will be maintained in the future. In 2008, EPA redesignated the San Joaquin Valley as attainment for PM_{10} and approved the PM_{10} Maintenance Plan.

In April 2008, the SJVAPCD Board adopted the 2008 $PM_{2.5}$ Plan. This plan was designed to attain federal and state $PM_{2.5}$ standards in the SJVAB.

3.3.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to air quality is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines. SJVAPCD describes thresholds of significance for air quality in its Guide for Assessing and Mitigating Air Quality Impacts (2002b). These thresholds were used to assess the significance of air quality impacts from the project.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
B) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
C) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
D) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
E) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

A) Would the project conflict with or obstruct implementation of the applicable air quality plan?

SJVAPCD has prepared several air quality plans for achieving compliance with federal and state ambient air quality standards, including 1-hour and 8-hour plans for ozone. The District has plans for PM_{10} and $PM_{2.5}$, and has published Air Quality Guidelines for General Plans (SJVAPCD 2005). The proposed project is not a stationary source that would be subject to any toxic air pollutant plans or requirements. In general, a project would obstruct implementation of the applicable air quality plan if it resulted in population or employment growth beyond what is allowed for in the plan. The project would require a maximum of 45 workers at any one time. Construction workers would be drawn from the local area or would commute from neighboring cities. O&M of the substation would be performed by the existing local PG&E workforce and would not induce permanent population growth. The project would provide added capacity as required to meet the projected growth of the area and would not directly or indirectly induce growth. The project would have no impact on applicable air quality plans.

B) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction. Construction of the project would occur over a period of approximately 12 months. Construction activity and equipment exhaust would result in short-term emission of

criteria pollutants. URBEMIS 2007 9.2.4 model software was used to calculate the estimated emission rates for construction, shown in Table 3.3-2.

Table 3.3-2: Estimated Construction Emissions

Pollutant	Estimated Construction Emissions (pounds per day)	Estimated Construction Emissions (tons per year)
Volatile organic compounds (VOCs)	8.34	0.24
NO_X	127.28	4.03
PM_{10}	745.17	7.74
$PM_{2.5}$	157.46*	1.71*
CO	37.29	1.35
Carbon dioxide (CO_2)	17,669.70	546.68
SO_2	0.01	0.00

NOTES:

* Includes estimated exhaust and dust emissions

SOURCE: Transcon 2010; Transcon 2011; PG&E 2012

The project size and daily trip volume qualifies the project as a Small Project Analysis Level (SPAL) under SJVAPCD's Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2002b). The main pollutant of concern for SPAL projects is PM_{10}. SJVAPCD has determined that compliance with Regulation VIII[1] and implementation of all other control measures (as appropriate, depending on the size and location of the project site) would constitute sufficient mitigation to reduce PM_{10} impacts below the significance threshold. In addition, the project would obtain a dust control permit and comply with applicable dust control measures specified by SJVAPCD.

The applicant has proposed APMs Air-1 through Air-8 to reduce impacts to air quality associated with project construction.

> **APM Air-1:** All disturbed areas that are not being actively used for construction purposes will be stabilized of dust emissions using water or covered with a tarp or other suitable covering.

[1] SJVAPCD has adopted a set of PM_{10} Fugitive Dust Rules collectively called Regulation VIII.

APM Air-2: All unpaved roads utilized for accessing the project will be stabilized by spraying with water.

APM Air-3: All ground-disturbing activities will be effectively controlled of fugitive dust emissions by application of water or by presoaking.

APM Air-4: When materials are transported off site, all material will be covered or wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained.

APM Air-5: All operations will remove the accumulation of mud or dirt from adjacent public streets at the end of each workday.

APM Air-6: Trackout (i.e., dirt and mud transported on vehicle tires and transferred to the pavement upon existing the work area) will be removed at the end of each workday when it extends 50 or more feet from the site.

APM Air-7: Speeds of vehicles and equipment operating on unpaved surfaces will be limited to no more than 15 miles per hour, and as required in the project dust control permit.

APM Air-8: Dust suppressants or watering will be used to ensure that dust is controlled to less than 20 percent opacity when winds exceed 20 miles per hour.

The following mitigation measure would also be applied to the project to reduce construction-related impacts to less than significant.

Mitigation Measure Air-1: All disturbed surface areas over 1,000 square feet must achieve final stabilization upon the completion of project construction. Final stabilization would be achieved through appropriate means that would provide long-term sediment and dust control. PG&E will be responsible for monitoring and maintaining all disturbed areas until final stabilization is achieved.

Operation and Maintenance. During project O&M, vehicular emissions associated with periodic maintenance of the facilities would be the only source of emissions. Estimated O&M emissions are summarized in Table 3.3-3. Maintenance personnel would visit the substation site approximately once per month and the power line once per year, with additional visits as needed for emergencies. O&M emissions would be negligible and, therefore, impacts to air quality standards would be less than significant.

Table 3.3-3: Estimated Operation Emissions

Pollutant	Estimated Construction Emissions (tons per year)
VOCs[1]	<0.001
NO_X	<0.001
PM_{10}	<0.001
$PM_{2.5}$	<0.001
CO	0.005
Mono-sulfur oxides (SO_x)[1]	<0.001

NOTE:

[1.] Emission estimates for SOx and VOCs were not calculated. Emission rates for these pollutants are lower than rates for NOx and PM10 and, thus, are anticipated to be less than 0.001 ton per year.

SOURCE: Transcon 2010; Transcon 2011; PG&E 2012

C) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

Construction. The project area is in non-attainment of NAAQS for O_3 and $PM_{2.5}$, and is in non-attainment of CAAQS for O_3 and PM_{10}. Construction of the project would not result in exceedance of quantitative thresholds for non-attainment pollutants. Additionally, the project would comply with Regulation VIII and implement SJVAPCD BMPs for air quality throughout the duration of construction. Other construction activities occurring in the vicinity of the proposed project may also generate emissions of nonattainment pollutants, which when considered cumulatively, could result in a greater impact. All other construction activities would be required to comply with Regulation VIII and implement measures similar to the proposed project's APMs Air-1 through Air-8 to reduce emission of nonattainment pollutants. Construction of the project would have a less-than-significant impact on cumulatively considerable nonattainment pollutant emissions.

Operation and Maintenance. O&M emissions of criteria pollutants by the project are expected to be negligible, as pollutants are restricted to vehicular emissions from periodic maintenance of an unmanned facility. No emissions of criteria pollutants would result from on-going operation of the facility. O&M of the project would have a less-than-significant impact on cumulatively considerable nonattainment pollutant emissions.

D) Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction. Sensitive receptors within 1,000 feet of the project area include 62 residences near the substation and along the proposed power line alignment, and 443 residences along

the proposed distribution lines. There are no schools or other sensitive receptors within the area. Construction would generate particulate matter from earth-moving activities and equipment exhaust. Particulate matter could impact nearby residences. Implementation of APMs Air-1 through Air-8 and Mitigation Measure Air-1 would reduce impacts to a less-than-significant level.

Operation and Maintenance. O&M of the project would not expose sensitive receptors to substantial pollutant concentrations because the proposed facilities are non-emitting facilities.

E) Would the project create objectionable odors affecting a substantial number of people?

No objectionable odors would be generated from project construction or operation activities. No odor impacts would occur.

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3.4 GREENHOUSE GASES

3.4.1 ENVIRONMENTAL SETTING

Greenhouse gases (GHGs) are global concerns, unlike criteria air pollutants or toxic air contaminants that are of regional and/or local concern. Scientific research indicates that observed climate change is most likely a result of increased GHG emissions associated with human activity (Intergovernmental Panel on Climate Change [IPCC] 2007). Global climate change describes a collection of phenomena, such as increasing temperatures and rising sea levels, occurring across the globe due to increasing anthropogenic emissions of GHGs (EPA 2009). GHGs contribute to climate change by allowing ultraviolet radiation to enter the atmosphere and warm the Earth's surface, and also by preventing some infrared radiation emitted by the Earth from escaping back into space. The largest anthropogenic source of GHGs is fossil fuel combustion, which results primarily in CO_2 emissions.

3.4.2 REGULATORY SETTING

State

Executive Order S-3-05

Governor Schwarzenegger issued Executive Order S-3-05 (EO S-3-05**)** in June 2005, which established several GHG emission reduction targets for California. GHG emissions were to be reduced to 2000 emission levels by 2010, to 1990 emission levels by 2020, and to 80 percent below 1990 levels by 2050.

AB 32

Subsequent to the Governor's issuance of EO S-3-05, the California State Legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 establishes a cap on statewide GHG emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emission levels. AB 32 recognizes a serious threat to the "economic wellbeing, public health, natural resources, and the environment of California" that results from global warming. It mandates a significant reduction in GHGs to contribute to efforts to stabilize atmospheric concentrations of GHGs (SJVAPCD 2009). It also defines "greenhouse gas" or "greenhouse gases" to include, but not be limited to, CO_2, methane (CH_4), NO_x, hydrofluorocarbons, perfluorocarbons, and sulfer hexaflouride (SF_6).

Scoping Plan

CARB developed a scoping plan addressing AB 32 requirements according to specific deadlines (CARB 2008). The Climate Change Scoping Plan outlines the main strategies California will use to reduce GHGs that cause climate change. The Climate Change Scoping Plan has a range of GHG reduction actions, which include:

- Direct regulations
- Alternative compliance mechanisms
- Monetary and non-monetary incentives
- Voluntary actions

- Market-based mechanisms, such as a cap-and-trade system

The Climate Change Scoping Plan was released on October 15, 2008, and was approved at CARB's Board hearing on December 12, 2008. The Climate Change Scoping Plan now requires CARB and other state agencies to adopt regulations and other initiatives reducing GHGs. The majority of the regulations and initiatives were scheduled for development by December 31, 2010, with most regulations and other initiatives going into effect by January 1, 2012.

3.4.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to GHGs is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
B) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of greenhouse gases?	☐	☐	☐	☒

A) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction. Emission rates from project construction were estimated using URBEMIS 2007 9.2.4 software. Daily emissions would vary throughout the construction period depending on the type of equipment and duration of use. PG&E would implement a number of measures to reduce GHG emissions, as listed below:

APM GHG-1/Noise-5: When not performing construction, operation, or maintenance activities, vehicles will be shut off rather than left idling unnecessarily. Some equipment or vehicles may require extended start-up times. For such equipment, a common sense approach will be used to determine idling times. Normal idling will not exceed five minutes, as required by California law.

APM GHG-2: Diesel fueled off-road construction equipment with 50 horsepower or greater engines shall at a minimum meet U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) Tier 1 engine standards. Compliance records will be kept by the general construction contractor. This APM is not applicable to

equipment permitted by the local air quality district or certified through CARB's Statewide Portable Equipment Registration Program, or single specialized equipment that will be used for less than five total days.

APM GHG-3: PG&E will incorporate the following measures into its construction plans to further reduce greenhouse gas emissions:

- Encourage construction workers to carpool by establishing carpooling to construction sites where feasible to do so.
- Encourage recycling of construction waste.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.

There are no established CEQA thresholds of significance for GHG emissions from construction activities; however, CPUC requires a quantitative approach for analyzing GHG emissions. Table 3.4-1 provides a summary of estimated GHG emissions from project construction activities. Emission of GHGs would be temporary and limited to the construction period (12 months). An estimated 397 tons of non-mitigated CO_2 would be emitted over the entire construction phase of the project (i.e., 12 months).

CARB's Preliminary Draft Staff Proposal does not include a significance threshold for GHG emissions from construction, but presumes there would be a less-than-significant impact if interim CARB performance standards are implemented (CARB 2008). These interim performance standards are integrated into APMs GHG-1 through GHG-3. Implementation of these measures would reduce GHG emissions from construction activities by approximately 7 percent (Table 3.4-1). The GHG emissions generated during construction of the project would, therefore, be less than significant.

Operation and Maintenance. GHG emissions during O&M activities would result from vehicle use and potentially from leakage from circuit breakers. Emissions rates for O&M were estimated using Emission Factors (EMFAC) 2007 software. Monthly maintenance and Annual SF_6 emissions for the substation, should they occur if a circuit breaker were to fail,

Table 3.4-1: Estimated Construction-Related Greenhouse Gas Emissions[1]

No Mitigation		With Mitigation (APMs 1, 2, and 3)	
Pounds per Hour	Tons per Year	Pounds per Hour	Tons per Year
20,039	397	18,836	370

NOTE:

[1.] Emissions values are expressed in CO2 rather than CO2 equivalent (CO2e) because the URBEMIS model does not include values for other GHGs. Although not included in these estimates, emissions of GHGs other than CO2 for construction activities are expected to be less than 1 percent of total emissions.

SOURCE: Transcon 2010; Transcon 2011

Table 3.4-2: Estimated Operational-Related Greenhouse Gas Emissions[1]

Source	GHG	$MTCO_2e/yr$
Circuit Breaker Potential Leakage (per circuit breaker)	SF_6	14.1
Vehicle Use[2]	CH_4 and CO_2	1.4
Total	CH_4, CO_2, and SF_6	15.5

NOTE:

1. Emissions values are expressed in CO_2e and include SF_6 emissions from circuit breaker emissions and vehicle use estimated at one trip per month. Vehicle use estimations were calculated using EMFAC 2007.

2. Vehicle use is based on one maintenance trip per month.

SOURCE: Transcon 2010; Transcon 2011

would be no more than 14.1 metric tons CO_2e per year ($MTCO_2e/yr$) per circuit breaker for a total of 70.5 $MTCO_2e/yr$. Table 3.4-2 provides a summary of estimated operational GHG emissions.

CARB staff developed state-wide interim thresholds of significance for GHGs that could be adopted by local agencies for their own use. For industrial projects, such as this project, CARB proposed a quantitative significance threshold of 7,000 $MTCO_2e/yr$ from operation of non-transportation-related GHG sources. Project emissions would be well below the significance threshold of 7,000 $MTCO_2e/yr$ during operation (Table 3.4-2). Implementation of APM GHG-4 would further reduce GHG emissions to a less-than-significant level.

> **APM GHG-4:** PG&E will continue to be an active member of the SF_6 Emission Reduction Partnership, which focuses on reducing emissions of sulfur hexafluoride (SF_6) from transmission and distribution sources. PG&E will also continue to institute new rules for more accurately monitoring its equipment for SF_6 leaks and immediately repairing leaks that are discovered. PG&E will ensure that all breakers purchased for this project will have a manufacturer's guaranteed SF_6 leakage rate of 0.5 percent per year or less.

B) Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of greenhouse gases?

Implementation of the Climate Change Scoping Plan includes a regulation for SF_6 reductions in the Electricity Sector that was partially approved in February 2011 with an implementation date of 2012 and reporting starting in June 2012 (California Code of Regulations §95356). The new regulation applies to operation of SF_6 gas insulated switchgear (California Code of Regulations §95350). Through implementation of APM GHG-4, the proposed project would comply with the regulation, which requires SF_6 emissions to be reduced to 1 percent by the year 2020 (California Code of Regulations §95352). The project would therefore, not conflict with the regulation. There would be no impact from this project because it would not conflict with an applicable plan, policy, or regulation.

3.5 BIOLOGICAL RESOURCES

This section describes the biological resources that occur within the project area, the regulatory setting for biological resources, and identifies potential impacts to sensitive species and their habitat that may result from construction, operation, and maintenance of the project.

3.5.1 ENVIRONMENTAL SETTING

Methodology

An internet search of existing CDFG Natural Diversity Database (CNDDB) species occurrence records was performed for areas within 5 miles of the project area. Species information was also analyzed from the USFWS Species Lists for the six U.S. Geological Survey (USGS) 7.5-minute quads surrounding the project area: Clovis, Friant, Lanes Bridge, Fresno North, Round Mountain, and Academy.

A PG&E wildlife biologist conducted a reconnaissance-level review of the project area in November 2008. Subsequent field visits were conducted by a botanist and wildlife biologist to further assess habitat in July 2009, March 2010, and January 2011. During these visits, habitat was evaluated for its potential to accommodate special-status species with a concentrated effort to identify signs and/or presence of special-status species.

In August 2011, a wildlife biologist conducted a reconnaissance-level review of the distribution circuit alignments. Habitat was evaluated for its potential to accommodate special-status species with a concentrated effort to identify signs and/or presence of special-status species.

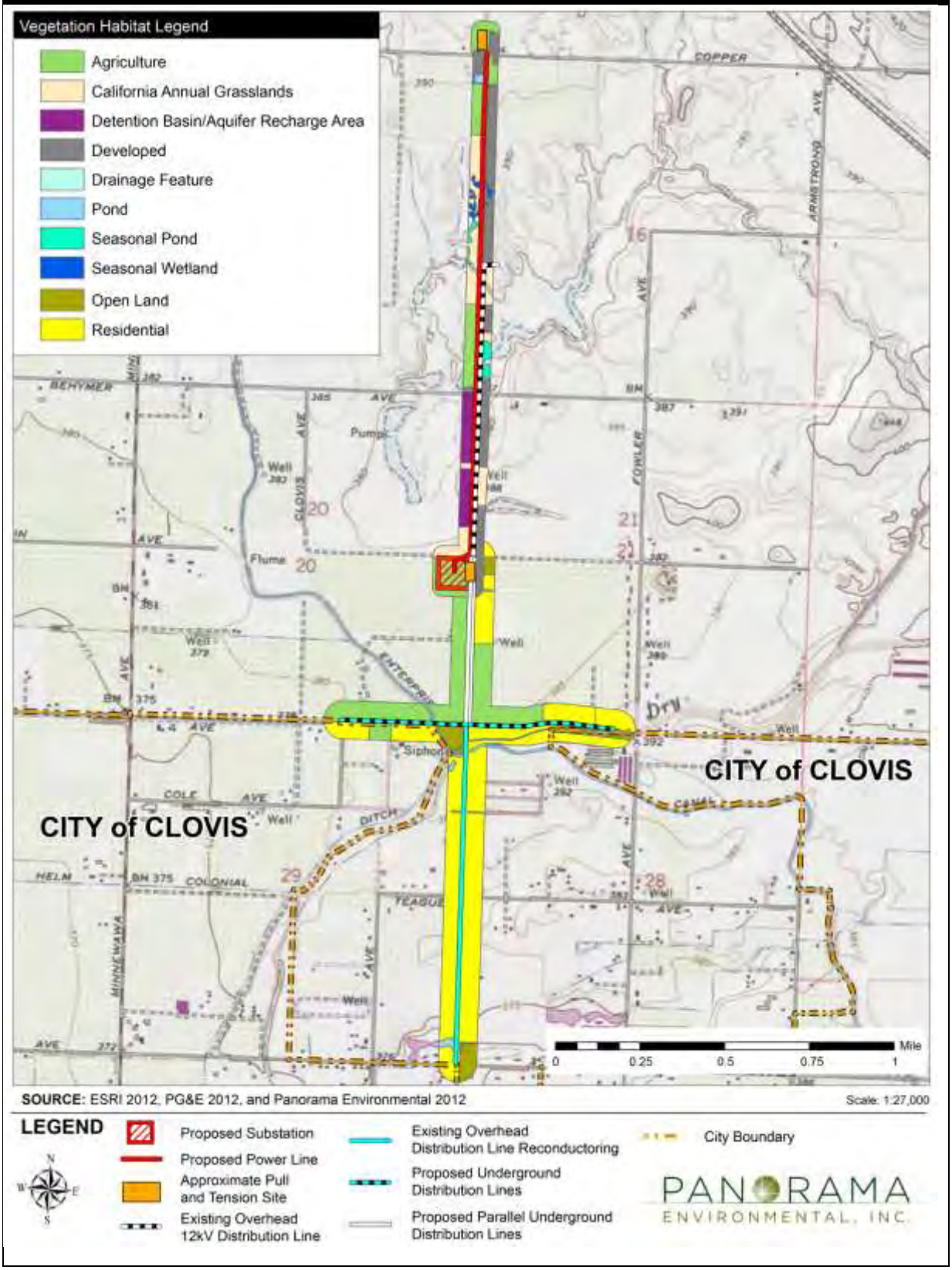
Vegetation and Habitat Types

The proposed project is located in a low- and medium-density rural residential area on the outskirts of the greater Fresno metropolitan area. Most of the project area has been developed or altered in some manner. The substation site is located entirely within an active almond orchard. The power line would generally pass through a mix of land use types, the majority of which are large, ranch-style, residential lots, but also includes a segment within the Fresno Metropolitan Flood Control District infiltration/retention basin north of the proposed substation site. Figure 3.5-1 depicts the habitat types observed within the entire project area during biological field surveys. Habitats of the project site include orchards, California annual grassland, natural and manmade seasonal wetlands and ponds, and developed lands.

Agriculture

Irrigated almond orchards and orange groves are located in various locations across the project area. Trees are planted in rows and are flood-irrigated. The substation site is located entirely within an almond orchard and the power line passes within an almond orchard and orange grove.

Figure 3.5-1: Vegetation Habitat Types in the Project Corridor



California Annual Grassland

California annual grassland vegetation dominates areas along the power line alignment on large parcels where orchards or residential development and associated infrastructure are not present. Some of these grassland areas are used as pasture and other areas are left fallow or occasionally disced. California annual grasslands are a mix of native and nonnative grasses and forbs. The vegetation height is generally no more than 3 feet. Species observed include, but are not limited to, broad-leaf filaree (*Erodium botrys*), rattail fescue (*Vulpia myuros*), soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), Fitch's tarweed (*Hemizonia fitchii*), and prickly lettuce (*Lactuca serriola*).

Wetlands and Aquatic Habitats

Wetland delineations were conducted for the project area on March 18, 2011, and August 3, 2011 (Transcon 2011a and 2011b). The wetland delineations were conducted in accordance with the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). Waters other than wetlands were delineated on the basis of the ordinary high water mark (OHWM). Wetlands and other waters within the project area are identified on Figures 3.5-2 through 3.5-7. The following wetlands and aquatic habitats were identified within or adjacent to the alignment of the power line and distribution lines:

- Seasonal wetlands
- Ephemeral drainage features
- Enterprise Canal
- Dry Creek
- Manmade freshwater ponds

Seasonal Wetlands. Two seasonal wetlands were identified within the power line alignment (Figures 3.5-2 and 3.5-3). One small (0.13-acre), isolated wetland is located within a pasture grazed by horses approximately 0.25 mile north of Behymer Avenue and southeast of a large, manmade pond. A second, larger wetland (0.63-acre) is located just north of the manmade pond.

Seasonal wetlands in the project area fill with water from direct precipitation and dry out completely during the summer months. They are characterized by similar soils and vegetation features as those present in persistent wetlands but have a limited hydrologic regime. Vernal pools are a subset of seasonal wetland that may be characterized by specific soil and species dependencies. It is not known if the two seasonal wetlands in the project area belong to the more narrow classification of vernal pool (PG&E 2012). The project would avoid these seasonal wetlands by placing power poles outside of the wetlands.

Figure 3.5-2: Wetland Delineation

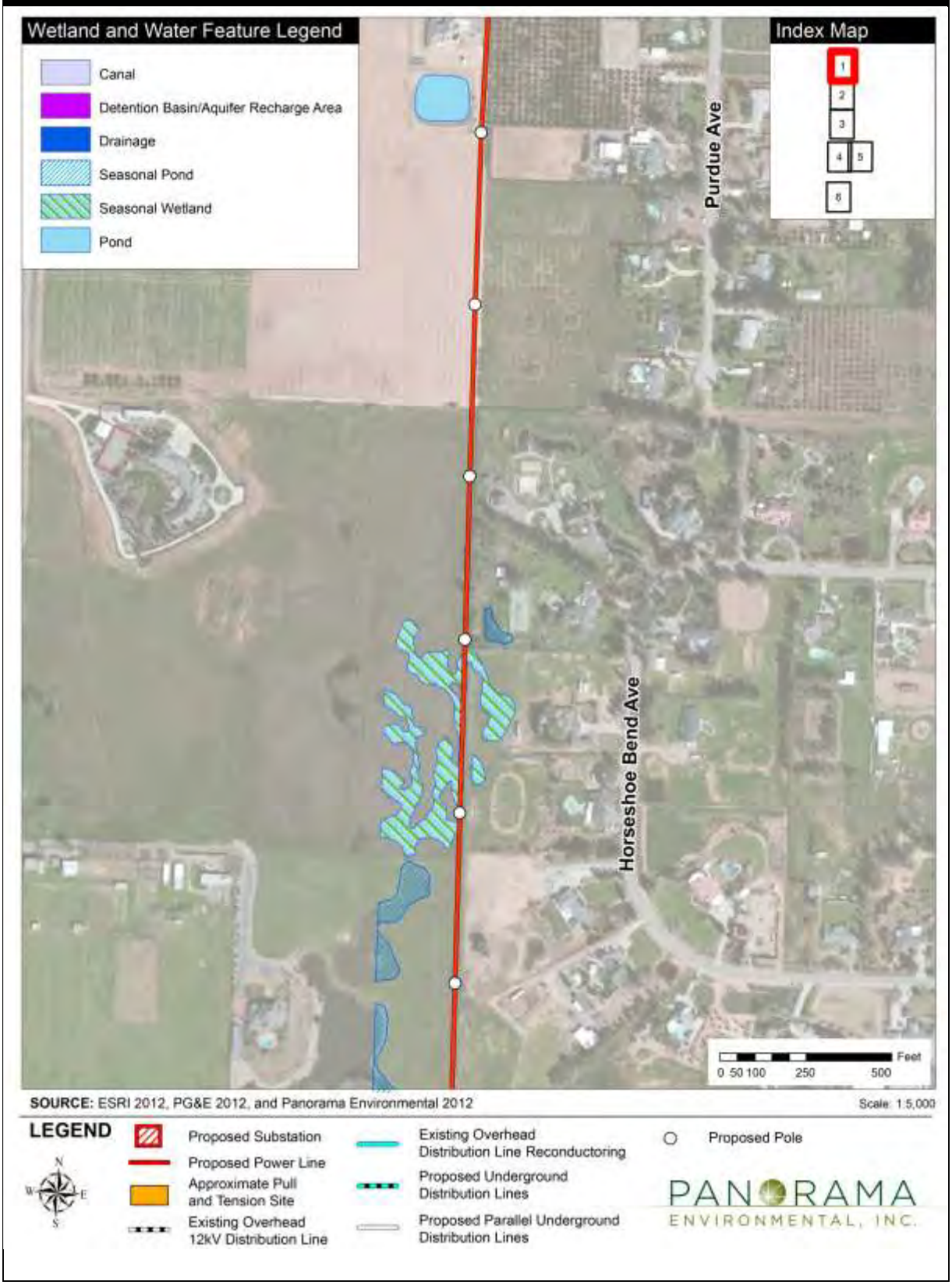


Figure 3.5-3: Wetland Delineation

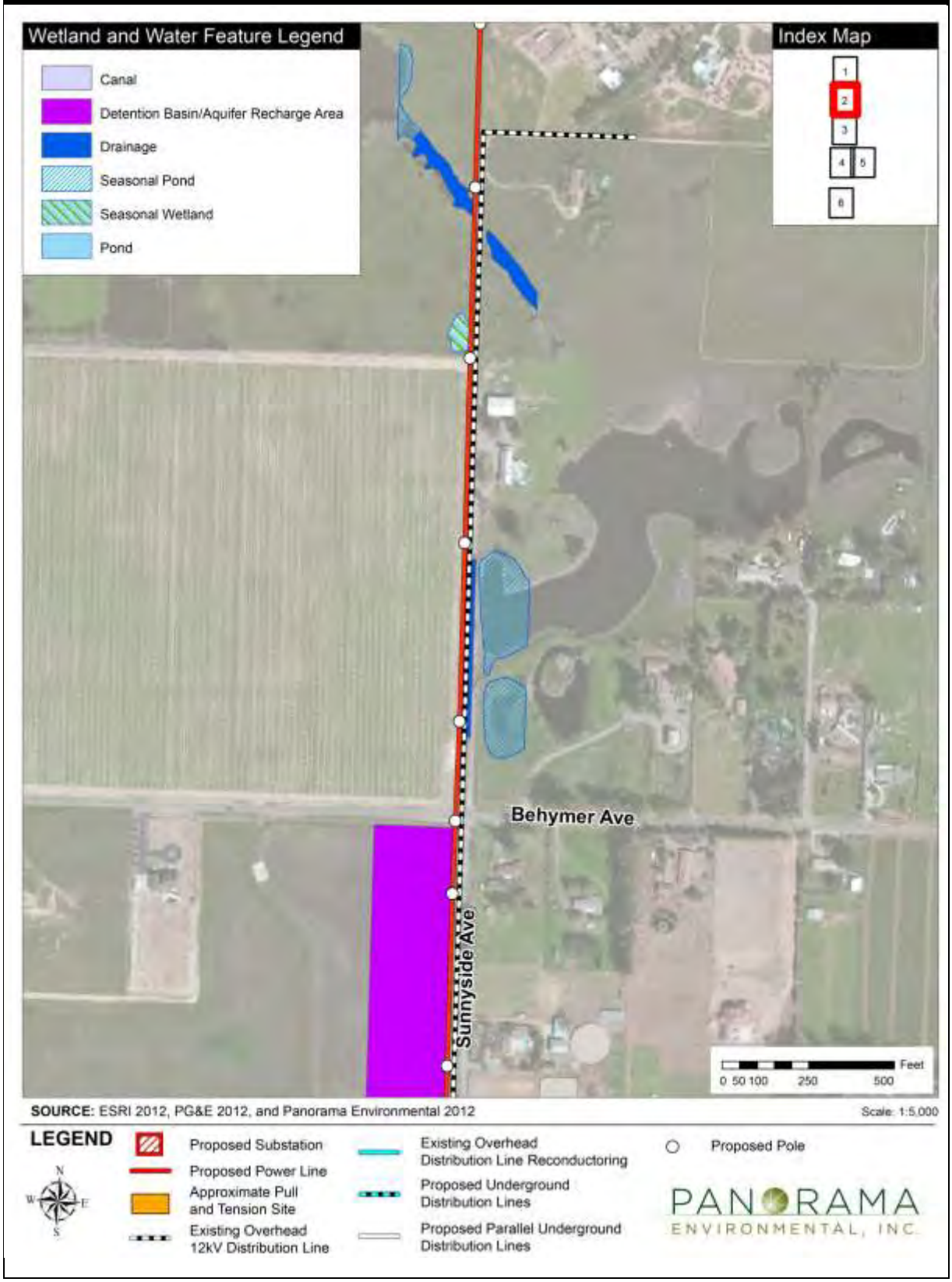


Figure 3.5-4: Wetland Delineation

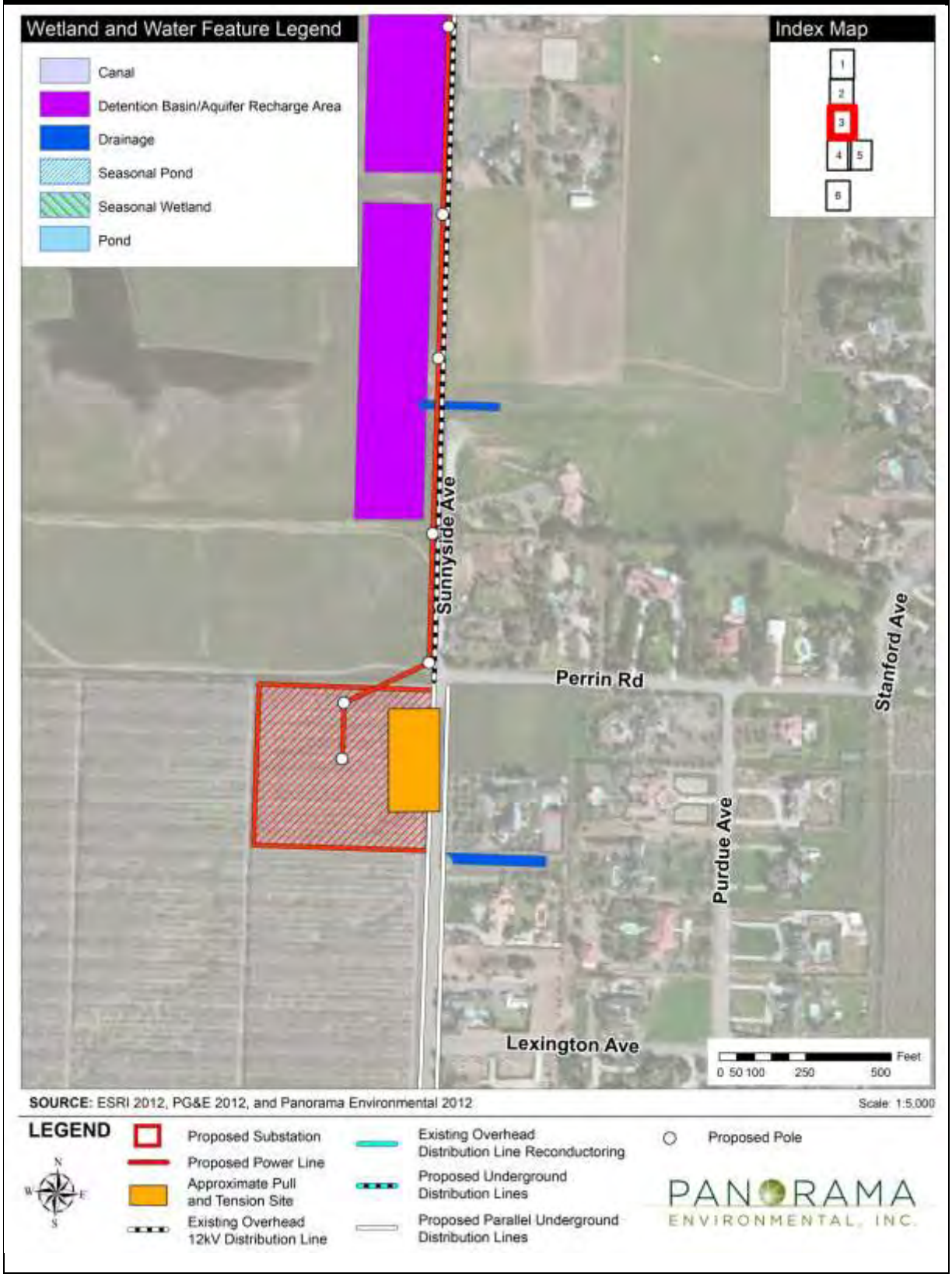
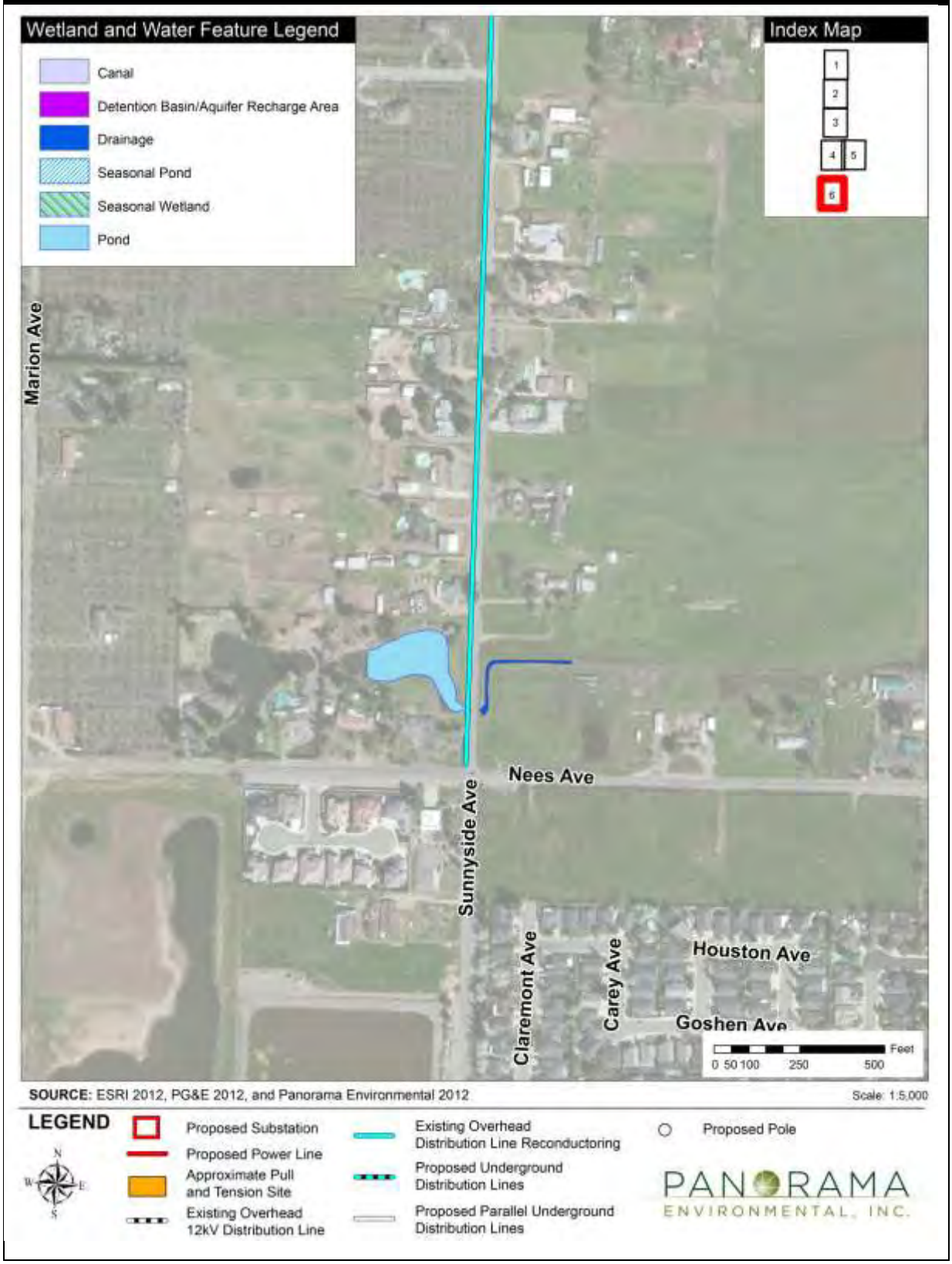


Figure 3.5-5: Wetland Delineation

Figure 3.5-6: Wetland Delineation

Figure 3.5-7: Wetland Delineation



Ephemeral Drainage Features. Three drainage features are present within the power line alignment and adjacent study area. The northernmost drainage feature is a 0.01-acre canal flowing east from the manmade, freshwater pond. A second drainage feature, a 0.05-acre roadside ditch, runs north-south between an agricultural access road and a driveway just north of Behymer Avenue. The third drainage feature, which is 0.03 acre, conveys water to the Flood Control District detention basin just north of Perrin Avenue. One ephemeral drainage feature is present within the distribution line alignment and adjacent study area. This 0.003 acre drainage diverts surface water away from roads and residential property, but does not appear to connect to any other water features .

Manmade Freshwater Pond. Two manmade ponds were identified within the power and distribution line alignments. One 0.12-acre freshwater pond is located at the northern end of the power line behind a newly constructed single-family home immediately south of E. Copper Avenue. This pond contained water throughout the dry season, and during the August site visit the water level was observed at about 2 feet below capacity. The pond was recently built along with a new home after an almond orchard was cleared. The second pond, which is 0.006 acre, appears to be fed by Fresno Irrigation District water via an irrigation canal and provides water for residential irrigation.

Enterprise Canal. Enterprise Canal is a 28-mile-long irrigation canal maintained by Fresno Irrigation District. The canal delivers surface water to the City of Fresno's water treatment plants and irrigation water to local farmers, and is used for the disposal of stormwater. The canal is concrete-lined and does not support riparian vegetation. The distribution line alignments cross the canal at two locations: west and south of the intersection of Shepherd Avenue and Sunnyside Avenue.

Dry Creek. A portion of Dry Creek is present within the project area along Sunnyside Avenue, directly north of Enterprise Canal. This creek is periodically fed by the Dry Creek reservoir located approximately 1.5 miles northeast of the project area. The creek is usually dry for the majority of the year.

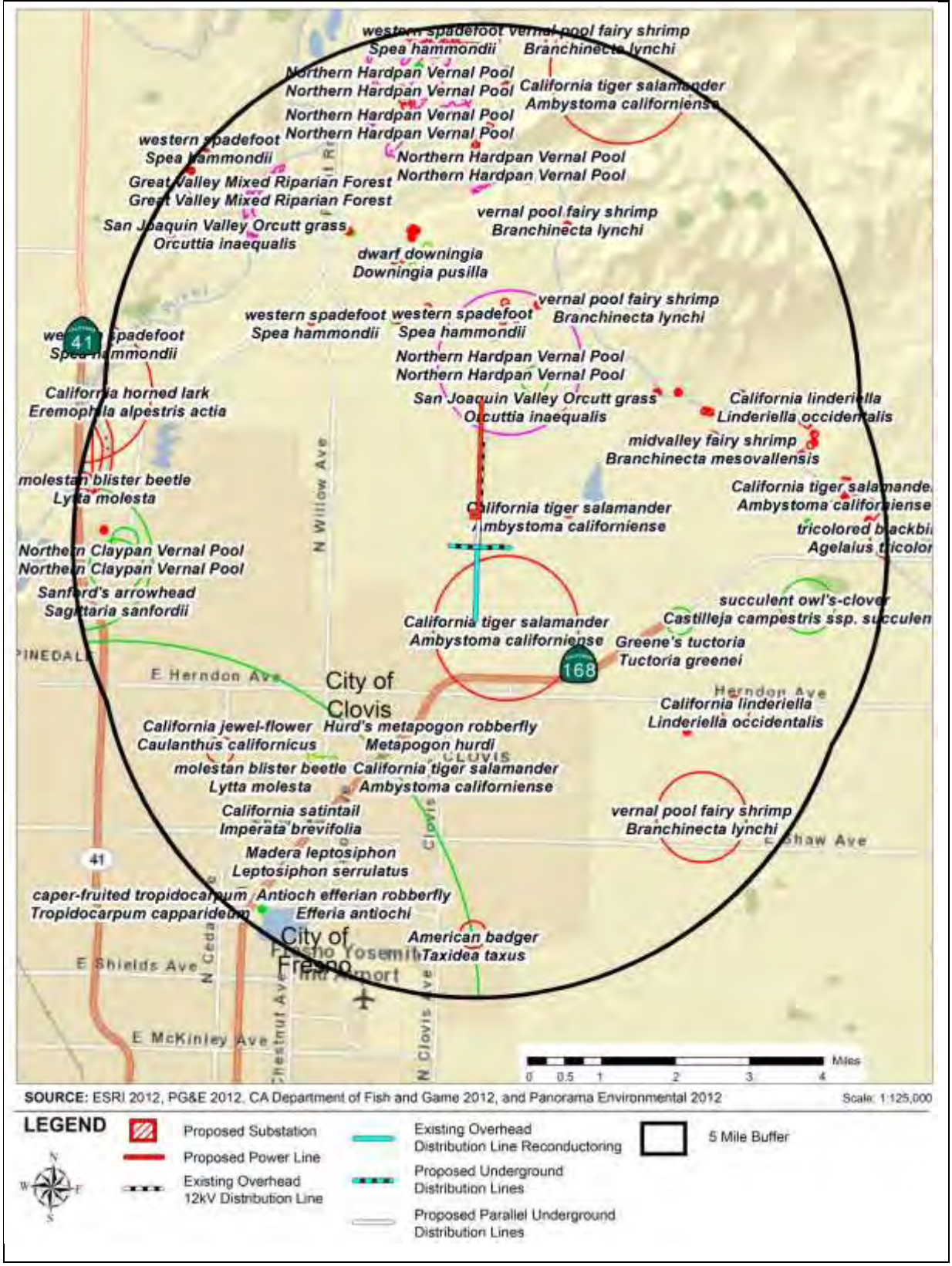
Developed Lands

Developed lands occur along the power line alignment in the form of residential development. These areas consist of planted lawns, planted landscape trees and shrubs, roadways, driveways, small pastures, and other infrastructure associated with residential housing.

Special-Status Species

A total of 37 special-status species were identified with the potential to occur within the proposed project area. Species occurrence records within a 5-mile buffer of the proposed project area are depicted in Figure 3.5-8. Tables 3.5-1 and 3.5-2 detail species information and an assessment of the probability of encountering them on the project site. The majority of the protected species were evaluated and eliminated from further review based on the following criteria:

Figure 3.5-8: Special Status Species within 5 Miles of the Project



- The proposed action would be outside the species' known geographic range
- The project area does not contain conditions known to support the species
- The project action would not alter or adversely affect habitat of the species

No special-status species were identified as having the potential to occur within the distribution line alignments.

Special-Status Plant Species

Four plant species have the potential to occur within the project area:

- Succulent owl's clover (*Castilleja campestris ssp. succulenta*)
- Dwarf downingia (*Downingia pusilla*)
- Spiny-sepaled button-celery (*Eryngium spinosepalum*)
- San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)

Table 3.5-1: Habitat Suitability Assessment for Special-Status Plant Species (within the Clovis, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, Fresno North, Lanes Bridge, Little Table Mountain, Millerton Lake West, and Millerton Lake East quadrangle maps)

Species	Status	Suitable Habitat	Rationale for Habitat Assessment
Plants			
Succulent owl's clover *Castilleja campestris ssp. succulenta*	FT, SE 1B.2	Yes	This species is found only in vernal pools along the lower foothills and valleys on the eastern San Joaquin Valley in the Southern Sierra Foothills Vernal Pool Region. See species analysis following this table.
California jewel-flower *Caulanthus californicus*	FE, SE 1B.1	No	This jewel flower occurs in nonnative grassland, upper Sonoran sub-shrub scrub, and cismontane juniper woodland. The naturally occurring populations known to exist today are distributed in three concentrations: (1) Santa Barbara Canyon, (2) the Carrizo Plain, and (3) the Kreyenhagen Hills in Fresno County. There are no known populations of this species within the project vicinity.
Dwarf downingia *Downingia pusilla*	2.2	Yes	Dwarf downingia occurs in vernal pools and similar ephemeral pools. In California, it is only known to occur in the Central Valley and southern north coast range. See species analysis following this table.

Table 3.5-1 (Continued): Habitat Suitability Assessment for Special-Status Plant Species (within the Clovis, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, Fresno North, Lanes Bridge, Little Table Mountain, Millerton Lake West, and Millerton Lake East quadrangle maps)

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
Spiny-sepaled button-celery *Eryngium spinosepalum*	1B.2	Yes	This species occurs in vernal pools, swales, and depressions in valley grassland communities in the Central Valley. It is known to occur in claypan vernal pools where soil is neutral to alkaline. See species analysis following this table.
California satintail *Imperata brevifolia*	2.1	No	California satintail is found in a variety of habitats: chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps, and Riparian scrub. The habitat known to support this species does not occur within the project area.
Madera leptosiphon *Leptosiphon serrulatus*	1B.2	No	This species occurs in Tulare, Fresno, Mariposa, Kern, and Madera Counties in open dry areas. It occurs in chapparel/foothill/cismontane woodlands and yellow pine forest communities. The habitat known to support this species does not occur within the project area.
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	FT, SE 1B.1	Yes	This species is endemic to the Southern Sierra Foothills Vernal Pool Region of the San Joaquin Valley. See species analysis following this table.
Hairy Orcutt grass *Orcuttia pilosa*	FE, SE, 1B.1	No	Hairy Orcutt grass is found on high or low stream terraces and alluvial fans between 25 and 125 meters in elevation. It grows in Northern Basalt Flow, Northern Claypan, and Northern Hardpan vernal pools within annual grasslands. Currently, the main area of concentration is the Vina Plains in Tehama County. Other occurrences are in the Southern Sierra Foothills Vernal Pool Region and Solano-Colusa Vernal Pool Region, including Madera, eastern Stanislaus County, and Glenn County. There are no records of this species within 5 miles of the project area. There are no occurrences within Fresno County.
Hartweg's golden sunburst *Pseudobahia bahiifolia*	FE, SE 1B.1	No	Hartweg's golden sunburst occurs in open grasslands and grasslands on the edge of blue oak forests, almost always on the north- or northeast-facing side of Mima mounds. Within Madera and Fresno Counties, this species only grows on shallow, well-drained, fine-textured, pumacious Rocklin soils. The habitat known to support this species does not occur within the project area.

Table 3.5-1 (Continued): Habitat Suitability Assessment for Special-Status Plant Species (within the Clovis, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, Fresno North, Lanes Bridge, Little Table Mountain, Millerton Lake West, and Millerton Lake East quadrangle maps)

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
San Joaquin adobe sunburst *Pseudobahia peirsonii*	FT, SE, 1B.1	No	This species inhabits valley and foothill grasslands and cismontane woodland communities. It typically grows in heavy clay soils on grassy valley floors or rolling foothills. The clay soils known to support this species do not occur within the project area.
Sanford's arrowhead *Sagittaria sanfordii*	1B.2	No	This species is known to occur in the Central Valley and delta region of California. It occurs in marshes, ditches, swamps, sloughs, ponds, and slow-moving streams with a silty or muddy bottom. The habitat known to suport this species does not occur within the project area.
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	1B.1	No	This species is known to occur in Alameda, Contra Costa, Glenn, Monterey, Santa Clara, and San Joaquin Counties. It occurs in alkaline soils of grasslands in lowlands and valleys that are less than 200 meters in elevation. The habitat known to support this species does not occur within the project area.
Greene's tuctoria *Tuctoria greenei*	FE, R 1B.1	No	This grass species is a small, tufted annual. It occurs in Butte, Tehama, Merced, and Shasta Counties. This species has been extirpated from Fresno, Tulare, Stanislaus, Madera, and San Joaquin Counties. The project occurs in Fresno County, and this species no longer occurs in Fresno County.

USFWS categories:

Endangered (FE) – Taxa in danger of extinction throughout all or a significant portion of its range; Threatened (FT) – Taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range; Candidate (FC) – Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened; candidate species, however, are not protected legally because proposed rules have not been issued; Proposed Endangered (PE) – Any species for which a proposed rule has been published in the Federal Register to list the species as endangered under the Endangered Species Act; Proposed Threatened (PT) – Any species for which a proposed rule has been published in the Federal Register to list the species as threatened under the Endangered Species Act.

CDFG categories:

Endangered (SE) – Taxa in danger of extinction throughout all or a significant portion of its range; Threatened (ST) – Taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range; Rare (R) – Species that, although not currently threatened with extinction, is found in such minimal numbers throughout its range that it may become endangered if current environments deteriorate; Candidate Species (SCS) – Species that has been officially under review by CDFG for addition to the threatened or endangered species [Source: CDFG Fish and Game Code]; Species of Concern (SSC) – Animals not listed under

the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist.

California Native Plant Society (CNPS) categories:

1A – Presumed extinct in California; 1B – Rare or Endangered in California and elsewhere; 2 – Rare or endangered in California, more common elsewhere.

SOURCE: Transcon 2010; Transcon 2011c

TABLE 3.5-2: Habitat Suitability for Special-Status Wildlife Species (within the Clovis, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, Fresno North, Lanes Bridge, Little Table Mountain, Millerton Lake West, and Millerton Lake East quadrangle maps)

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
Invertebrates			
Conservancy fairy shrimp *Branchinecta conservatio*	FE	No	This species of shrimp inhabits rather large, cool vernal pools with moderate turbidity that last until June. This species is known to occur in Glenn, Tehama, Stanislaus, Yolo, Butte, Solano, Merced, and Ventura Counties. This species is not known to occur in Fresno County.
Vernal fairy shrimp *Branchineta lynchi*	FT	Yes	The vernal fairy shrimp occurs in vernal pools of varying sizes in the southern and Central Valley areas of California. See species analysis following this table.
Midvalley fairy shrimp *Branchinecta mesovallensis*	FC	Yes	Typical habitat for Midvalley fairy shrimp includes vernal pools, seasonally ponded areas within vernal swales, rock outcrop ephemeral pools, playas, and alkali flats. Other types of depressions that hold water of a similar volume, depth, and area, and for a similar duration and seasonality to that of vernal pools and ponded areas within swales may also be potential habitat (Jones & Stokes 2006).
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	No	This beetle species is dependent upon the presence of mature elderberry species (Genus *Sambucus).* They are typically found in local population clusters in riparian habitats less than 3,000 feet in elevation. There are no elderberry plants within the project area.
Antioch efferian robberfly *Efferia antiochi*	FC	No	Known only from sand dunes in Antioch and San Joaquin Valley (CDFG 2009). There is no potential habitat for this species within the project area.
California linderiella *Linderiella*	FC	Yes	This species is entirely dependent on vernal pool wetland ecosystems. The California linderiella fairy shrimp depends on the presence of water in winter and

TABLE 3.5-2: Habitat Suitability for Special-Status Wildlife Species (within the Clovis, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, Fresno North, Lanes Bridge, Little Table Mountain, Millerton Lake West, and Millerton Lake East quadrangle maps)

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
occidentalis			early spring, and the absence of water during summer. See species analysis following this table.
Molestan blister beetle *Lytta molesta*	FC	Yes	This species occurs in vernal pool habitats. See species analysis following this table.
Hurd's metapogon robberfly *Metapogon hurdi*	FC	No	This species is endemic to the sand dunes in Antioch and San Joaquin Valley (CDFG 2009). There is no potential habitat for this species within the project area.
Fish			
Delta smelt *Hypomesus transpacificus*	FT	No	The delta smelt is tolerant of a wide salinity range. Most of its life will be spent in the highly productive brackish-water habitat associated with the freshwater edge of the mixing zone and it will migrate upstream into river channel and tidally influenced backwater sloughs to spawn in the Sacramento River. Suitable aquatic habitat for this species is absent from the project site.
Hardhead *Mylopharodon conocephalus*	SSC	No	This species can be found in the Sacramento-San Joaquin and Russian River drainages. It prefers streams with deep pools and slow river velocities. Suitable aquatic habitat for this species is absent from the project site.
Central Valley steelhead *Oncorhynchus mykiss*	FT	No	This Evolutionary Significant Unit (ESU) pertains to steelhead of the Central Valley. This species is found in cool, clear streams, large rivers, and water bodies with cobble and boulder substrates. This ESU migrates between freshwater and marine habitats. The breeding range is identified as the Sacramento-San Joaquin River system. There are no suitable waterways within the project area to support this species.
Amphibians			
California tiger salamander *Ambystoma californiense*	FT, ST	Yes	This species occurs in central California in lowlands or low foothills at elevations less than 2,000 feet where aquatic sites are present for breeding. They typically breed in natural vernal or ephemeral ponds but will breed in artificial ponds that mimic natural conditions. See species analysis following this table.

TABLE 3.5-2: Habitat Suitability for Special-Status Wildlife Species (within the Clovis, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, Fresno North, Lanes Bridge, Little Table Mountain, Millerton Lake West, and Millerton Lake East quadrangle maps)

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
California red-legged frog *Rana aurora draytonii*	FT, ST	No	This frog inhabits deep, still or slow-moving water of ephemeral or permanent streams or ponds, which are surrounded by dense, shrubby riparian vegetation such as arroyo willow, cattails, and bulrushes. The juveniles seem to favor open, shallow aquatic habitats with dense submergents. California red-legged frogs are found from Shasta County south to the Mexican border. They can also be found in central Nevada where populations have been introduced. Significant numbers of this species can be found in the small coastal drainages between Point Reyes in Marin County and Santa Barbara in Santa Barbara County; however, the red-legged frog has been extirpated from Fresno County.
Western spadefoot *Spea hammondii*	SSC	Yes	This species can be found in seasonal pools and wetlands that are free of fish, bullfrogs, and crayfish. They occur primarily in grassland habitats, but may also be found in woodland or scrublands. See species analysis following this table.
Reptiles			
Western pond turtle *Emys marmorata*	SSC	Yes	This species can be found in a variety of aquatic habitats, including marshes, streams, ponds, and irrigation ditches. They require aquatic vegetation and basking sites; however, nesting locations may be found up to 0.5 kilometer from water (CNDDB 2009). See species analysis following this table.
Blunt-nosed leopard lizard *Gambelia sila*	FC, SE	No	This lizard is found in association with other burrowing animals. It prefers burrows in sparsely vegetated areas. It is known to occur in valley and foothill grassland, salt brush scrubland, iodine bush grassland, and *Sueda* flats communities. The project does not occur in a vegetative community known to support this species.
Giant garter snake *Thamnophis gigas*	FT, ST	No	USFWS lists four habitat requirements for this species: adequate water during the active season, emergent herbaceous wetland vegetation, grassy banks with open area for basking, and higher elevation uplands for cover and refuge from flooding. The project area does not contain suitable aquatic habitat to support this species.

TABLE 3.5-2: Habitat Suitability for Special-Status Wildlife Species (within the Clovis, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, Fresno North, Lanes Bridge, Little Table Mountain, Millerton Lake West, and Millerton Lake East quadrangle maps)

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
Birds			
Tricolored blackbird *Agelaius tricolor*	SSC	Yes	This is a colonial species, which nests in vegetation within or along water features, primarily within California's Central Valley. Foraging habitats vary, but generally include a large insect prey base. See the species analysis following this table.
Burrowing owl *Athene cunicularia*	SSC	Yes	Burrowing owls primarily occupy grassland habitats, though they are known to occupy habitats that have been altered by humans. In agricultural environments, owls may nest along roadside and water conveyance structures. In highly developed areas, such as airfields, urban parks, and adjacent to roads with heavy traffic, burrowing owls may nest in low numbers. This species roosts and nests in abandoned burrows of fossorial (burrowing) mammals, commonly the California ground squirrel (*Spermophilus beecheyi*). Adult burrowing owls show strong nest site fidelity. Primary habitat constituents include the presence of burrows, relatively short vegetation with only sparse shrubs, and taller vegetation. Suitable habitat for the burrowing owl is not present at the substation site, as it is within an almond orchard. Nearly all habitat along the proposed power line alignment that is not occupied by housing, associated infrastructure, orchards, or ponds, however, would be considered suitable habitat for burrowing owls. Additional potential habitat for the burrowing owl is present along the edges of any of the orchards and some roads in the project area.
Western yellow-billed cuckoo *Coccyzus americanus*	FC, SE	No	The western yellow-billed cuckoo inhabits riparian areas with dense shrubs and a developed canopy. The canopy is often composed of cottonwood and sycamore trees. The project area does not include the riparian habitat known to support this species.
California horned lark *Eremophila alpestris actia*	SSC	No	Nests in level or gently sloping shortgrass prairie, montane meadows, "bald" hills, open coastal plains, fallow grain fields, and alkali flats. Grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities provide cover.

TABLE 3.5-2: Habitat Suitability for Special-Status Wildlife Species (within the Clovis, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, Fresno North, Lanes Bridge, Little Table Mountain, Millerton Lake West, and Millerton Lake East quadrangle maps)

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
Mammals			
Fresno kangaroo rat *Dipodomys nitratoides Exilis*	FE	No	This species occurs in grasslands and chenopod scrub communities on the San Joaquin Valley floor. It prefers areas with flat, friable soils that stay moist year-round. The habitat known to support this species does not occur within the project area.
San Joaquin kit fox *Vulpes macrotis mutica*	FE, ST	Yes	The San Joaquin kit fox (SJKF) occurs in various grassland and scrubland communities. It requires loose-textured sandy soils for burrowing and suitable prey base. SJKFs are generally restricted to the San Joaquin valley. Fragmented populations and isolated individuals may extend out from this range. See species analysis following this table.
American badger (*Taxidea taxus*)	SSC	Yes	This species occurs in wide, open plains and deciduous woodlands, farmlands, marshy areas, prairies, and desert. See species analysis following this table.

USFWS categories:

Endangered (FE) – Taxa in danger of extinction throughout all or a significant portion of its range; **Threatened (FT)** – Taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range; **Candidate (FC)** – Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened; candidate species, however, are not protected legally because proposed rules have not been issued; **Proposed Endangered (PE)** – Any species for which a proposed rule has been published in the Federal Register to list the species as endangered under the Endangered Species Act; **Proposed Threatened (PT)** – Any species for which a proposed rule has been published in the Federal Register to list the species as threatened under the Endangered Species Act.

CDFG categories:

Endangered (SE) – Taxa in danger of extinction throughout all or a significant portion of its range; **Threatened (ST)** – Taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range; **Rare (R)** – Species that, although not currently threatened with extinction, is found in such minimal numbers throughout its range that it may become endangered if current environments deteriorate; **Candidate Species (SCS)** – Species that has been officially under review by CDFG for addition to the threatened or endangered species [Source: CDFG Fish and Game Code]; **Species of Concern (SSC)** – Animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist.

CNPS categories:

1A – Presumed extinct in California; **1B** – Rare or Endangered in California and elsewhere; **2** – Rare or endangered in California, more common elsewhere.

SOURCE: Transcon 2010; Transcon 2011c

The four special-status plant species with potential to occur in the project area are described below.

Succulent Owl's Clover. Succulent owl's clover, also known as fleshy owl's clover, was listed as endangered under the California Endangered Species Act (ESA) in September 1979, and as threatened under the Federal ESA on March 26, 1997. Critical habitat was designated August 6, 2003, and revised August 11, 2005. It is found only in vernal pool habitats along the eastern San Joaquin Valley in the Southern Sierra Foothills Vernal Pool Region (USFWS 2010a). This species typically grows near the margins of vernal pools and swales, and is often found on acidic soils (USFWS 2010a). Suitable habitat for this species exists within and along the seasonal wetlands located within the power line alignment. The largest threats to this species are habitat loss and fragmentation from urbanization, agricultural conversion, and mining. Nonnative invasive species also pose a threat.

San Joaquin Valley Orcutt Grass. San Joaquin Valley Orcutt grass is listed as threatened under the Federal ESA and as endangered under the California ESA. Critical habitat was established for the species in 2003, and amended in 2006. The species is endemic to California, where it has always been restricted to the Southern Sierra Foothills Vernal Pool Region of the San Joaquin Valley (UWFWS 2010b). The San Joaquin Valley Orcutt grass generally grows in deeper vernal pools that allow for an extended aquatic phase in its development. *Orcuttia* plants grow underwater for three months or more and have evolved specific adaptations for aquatic growth (Keeley 1998; USFWS 2010c). Suitable habitat for this species exists within the seasonal wetlands located within the power line alignment.

Spiny-sepaled Button-celery. Spiny-sepaled button-celery is a CNPS 1B.2 plant. Listing as 1B means that the species is rare, threatened, or endangered in California and elsewhere. The 0.2 designation means that the species is fairly endangered in California. The species inhabits vernal pools and valley and foothill grasslands. Suitable habitat for this species includes the seasonal wetlands and grasslands located within the power line alignment. Currently it is known from Fresno, Madera, Merced, Stanislaus, Tulare, and Tuolumne Counties (CNPS 2011). Threats to the species include development, grazing, road maintenance, and agriculture.

Dwarf Downingia. Dwarf downingia is a CNPS List 2 plant, meaning that it is rare, threatened, or endangered in California, but more common elsewhere. The species occurs in vernal pools, mesic grasslands, and along the margins of small lakes and ponds. The species generally occurs in areas of low vegetative cover. Suitable habitat for this species may occur within the seasonal wetlands, grasslands, and manmade ponds located within the power line alignment. The species flowers from March to April. Threats to the species include urbanization, agriculture, grazing, and industrial forestry.

Special-Status Wildlife Species

Eleven special-status wildlife species have the potential to occur within the project area:

- Vernal pool fairy shrimp (*Branchineta lynchi*)
- California tiger salamander (*Ambystoma californiense)* (CTS)
- Midvalley fairy shrimp (*Branchinecta mesovallensis)*
- California linderiella (*Linderiella occidentalis*)
- Molestan blister beetle (*Lytta molesta*)
- Western spadefoot (*Spea hammondii*)
- Western pond turtle (*Emys marmorata*)
- Burrowing owl (*Athene cunicularia*)
- Tricolored blackbird (*Agelaius tricolor*)
- San Joaquin kit fox (Vulpes macrotis mutica)
- American badger (*Taxidea taxus*)

The seven special-status wildlife species with potential to occur in the project area are described below.

Vernal Pool Fairy Shrimp. The vernal pool fairy shrimp was listed as threatened under the Federal ESA on September 19, 1994. Critical habitat was designated on August 6, 2003, and revised on August 11, 2005. The species is endemic to vernal pool habitats within grasslands of the Central Valley, Central Coast Mountains, and South Coast Mountains of California. It has been collected in large vernal pools but is more frequently found among smaller pools. Most often the pools are smaller than 0.05 acre (USFWS 2005). Eggs remain dormant during the dry season when the pools are dry. When the pools fill in the fall or winter the eggs hatch and quickly develop to sexually mature adults. Upon mating the adult female will lay numerous eggs. All adults die when pool temperatures rise or the pool dries. Typically the shrimp are observed in pools from December to early May. Threats to the species include habitat loss and degradation (USFWS 2005). CNDDB records indicate that the closest known occurrence of this species is approximately 3 miles north of the project area. The seasonal wetlands located along the power line route may be suitable habitat for the vernal pool fairy shrimp.

Midvalley Fairy Shrimp. The midvalley fairy shrimp is a candidate species for federal listing. Midvalley fairy shrimp require seasonally ephemeral aquatic habitats that pool in winter and spring. The species most commonly occurs in vernal pools, seasonally ponded areas within vernal swales, rock outcrop ephemeral pools, playas, and alkali flats. The midvalley fairy shrimp is adapted to habitats that are inundated for short periods and can complete its life cycle (cyst to adult with fertilized eggs) in as little as four days, especially under extreme circumstances, such as years with below-average rainfall. The ability to rapidly complete its life cycle allows the midvalley fairy shrimp to use habitats that are extremely hydrologically unstable (i.e., fill and dry quickly) (Jones & Stokes 2006). CNDDB

records indicate a known occurrence of this species approximately 4 miles east of the project area. The seasonal wetlands along the power line route may be suitable habitat for the midvalley fairy shrimp.

California Linderiella. The California linderiella is a candidate species for federal listing. This species is entirely dependent on the aquatic environment provided by vernal pool wetland ecosystems. The California linderiella fairy shrimp depends on the presence of water in winter and early spring, and the absence of water during summer. Linderiella fairy shrimp need cold winter waters to hatch and grow and the dry summers to desiccate the resting cysts and prevent fungal infection. The species is able to tolerate water temperatures from 41 to 85 degrees Fahrenheit (Technology Associates 2009a). CNDDB records include 10 occurrences of this species within 5 miles of the project area. Suitable habitat for this species occurs within The seasonal wetlands located along the power line route may be suitable habitat for this species.

Molestan Blister Beetle. The Molestan blister beetle is a candidate species for federal listing. The species has been collected on *Lupinus*, *Trifolium wormskioldii* in dried vernal pools, and *Eriodium*. The species has only been found in grasslands with vernal pool vegetation, but a lack of detailed collecting information makes it unclear whether the species is always or usually associated with dried vernal pools (CDFG 2006).

The larvae of Molestan blister beetle are nest parasites of native, ground-dwelling bees, and target those bee species that frequently visit the same host plants on which the adult beetles forage. Within the bee nest, larval Molestan blister beetles consume the pollen stores collected by the bee for its own offspring, and usually consume the immature bee larvae at the same time. Larvae hibernate over winter within the bee nest, and molt in the spring (Technology Associates 2009b).

The Molestan blister beetle record closest to the project area is located approximately 5 miles west of the substation (CNDDB 2009). Suitable habitat for this species occurs within the grasslands adjacent to the seasonal wetlands along the power line route.

California Tiger Salamander. The central California Distinct Population Segment (DPS) of the CTS was listed as threatened under the Federal ESA on August 4, 2004, and threatened under the California ESA on March 3, 2010. The central California DPS occurs in the Central Valley. The CTS has been extirpated from much of its range, and has lost significant amounts of habitat. The loss of habitat has been largely a result of population growth and agricultural expansion (Natureserve 2008). The CTS spends most of the year underground in mammal burrows or small holes in terrestrial habitats such as grasslands, woodlands, and savannas. This behavior is commonly referred to as aestivation. The CTS spends nearly its entire life underground, in the burrows of California ground squirrels (*Spermophilus beecheyi*) or Botta's pocket gophers (*Thomomys bottae*) (Barry and Shaffer 1994; Cook et al. 2006). During the breeding season (November to April) it migrates up to 2 kilometers (1.25 miles) during rainy nights to reach appropriate breeding habitat. Breeding habitat consists of seasonal ponds and

vernal pools that hold water for a minimum of three months to allow for complete larval development. Ponds supporting fish and stream channels are generally unsuitable habitats.

There is historical record of occurrence of a California tiger salamander near the southern portion of the distribution line alignment along N. Sunnyside Avenue; however, this occurrence was reported in 1974 and the species is considered extirpated from the area (CNDDB 2011). The vernal pool habitat where the observation occurred is no longer present, and the majority of the surrounding areas have been developed (Transcon 2011c).Several CNDDB records exist in the area north of E. Copper Avenue. Given the low-density, rural community nature of the project area and vicinity, movement opportunities exist between sites where the CTS has been documented and the project area.

Seasonal pools and ponds located on and adjacent to the proposed power line provide suitable breeding habitat, and grasslands on and adjacent to the power line provide suitable aestivation habitat.

Western Spadefoot Toad. The western spadefoot toad is listed as a Species of Special Concern by CDFG. The western spadefoot toad spends the majority of the year in terrestrial burrow habitats. Reproductive activities for the western spadefoot toad require seasonal pools and pond habitats primarily within grassland habitats, but it also occurs in woodland, scrubland, or chaparral habitats. Seasonal breeding habitat must be free of fish, bullfrogs, and crayfish, and must persist for at least 30 days to allow larvae sufficient time to develop. Reproductive activities typically occur from January through May; however, the species is capable of breeding year-round if suitable habitat and environmental conditions are met (Ervin and Cass 2007).

Suitable breeding habitat for this species occurs along the power line alignment, within the seasonal pools and ponds, and suitable aestivation habitat occurs within grassland areas located along the power line alignment. There are no known occurrences of this species within the project area; however, CNDDB records indicate three extant occurrences within 5 miles of the project area, the nearest being approximately 1.5 miles away.

Western Pond Turtle. The western pond turtle is listed as a Species of Special Concern by CDFG. Western pond turtles are uncommon to common in suitable aquatic habitat throughout California at elevations from near sea level to 4,690 feet above sea level (Zeiner et al. 1988-1990). The turtle is subdivided into a northwestern sub-species (*E.m.marmorata*) and a southwestern sub-species (*E.m.pallida*). The pond turtle is associated with still or slow-moving permanent or nearly permanent aquatic habitats with access to suitable basking sites (logs, rocks, or open banks) and nearby upland nesting habitat. Western pond turtles are thoroughly aquatic and can be found throughout the state inhabiting woodland, grassland, and open forest habitats that contain ponds, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation (Stebbins 2003). Upland nesting habitat consists of sandy banks along large, slow-moving streams or hillsides above foothill streams. Females may travel up to 325 feet from water to nest in soil that is at least 4 inches deep.

CNDDB records indicate the nearest known occurrence of this species is near the Friant-Kern Canal, approximately 2.5 miles from the project area. Two other extant occurrences are documented within 5 miles of the project area. Suitable habitat is present within the ponds and irrigation ditch along the power line alignment. No turtles were observed during biological surveys.

Tricolored Blackbird. The tricolored blackbird is listed as a Species of Special Concern by CDFG. This species forms the largest breeding colonies of any North American land bird (Shuford and Gardali 2008). During the winter, birds will congregate in huge, mixed-species blackbird flocks; during the breeding season, birds form pure tricolored blackbird flocks.

This colonial bird nests in freshwater marshes and riparian habitats. Basic breeding site requirements include open, accessible water, protected nesting substrate (including flooded, thorny, and/or spiny vegetation), and suitable foraging space providing adequate insect prey. Nests are constructed in high densities from ground level to up to 1.5 meters (5 feet) in cattails, tulles, nettles, thistles, willows, and blackberry thickets. The majority of birds breed from mid-March to early August, though some Central Valley locations have documented autumnal breeding from September through November. This species primarily forages in native and artificial habitats, including crop fields, grain fields, annual grasslands, cattle feedlots, dairies, wet and dry vernal pools, other seasonal wetlands, riparian scrub, and open marsh borders. Vineyards, orchards, and row crops do not provide suitable nesting substrates.

CNDDB records indicate that the nearest known breeding site, which is listed as extant, is located approximately 5 miles from the project area. An extirpated population is located approximately 4.5 miles away. Suitable foraging habitat, but not nesting habitat, is present along the power line alignment. Although several ponds and seasonal wetlands can be found along the power line alignment, the vegetation along the water features is not the typical dense vegetation this species uses for nesting. These areas could be used for foraging.

Burrowing Owl. The burrowing owl is listed as a Species of Special Concern by CDFG. Burrowing owls primarily occupy grassland habitats, though they are known to occupy habitats that have been altered by humans (Shuford and Gardali, ed. 2008). In agricultural environments, owls may nest along roadside and water conveyance structures. In highly developed areas, such as airfields, urban parks, and adjacent to roads with heavy traffic, burrowing owls may nest in low numbers. This species roosts and nests in abandoned burrows of fossorial mammals (commonly the California ground squirrel). Adult burrowing owls show strong nest site fidelity. Primary habitat constituents include the presence of burrows, relatively short vegetation with only sparse shrubs, and taller vegetation. During the breeding season, which occurs between February and August in California, burrowing owls will forage close to their burrows (usually within 600 meters), but have been recorded to hunt up to 2 kilometers away. This species is found throughout most of California, with the exception of counties north of Marin and in mountainous areas. Throughout much of California, the burrowing owl is a year-round resident.

There are no CNDDB records of burrowing owls within 5 miles of the project area. Nearly all habitat along the proposed power line alignment that is not occupied by housing, associated infrastructure, orchards, or ponds, would be considered suitable habitat for burrowing owls. Additional potential habitat for the burrowing owl is present along the edges of any of the orchards and some roads in the project area.

San Joaquin Kit Fox. The SJKF was listed as endangered under the Federal ESA on March 11, 1967, and as threatened under the California ESA on June 27, 1971. No critical habitat has been designated for the species. A Recovery Plan for the SJKF was prepared in 1998. Prior to 1930, the SJKF range extended from southern Kern County north to Tracy, San Joaquin County, on the west side, and near La Grange, Stanislaus County, on the east side (Grinnell et al. 1937; USFWS 1998). The SJKF is often associated with open grasslands and oak savannas; however, agricultural areas (e.g., irrigated row crops, orchards, and vineyards) can also be used for foraging. Orchards may support some prey species if the grounds are not manicured, but typically denning potential within orchards is low due to increased predatory potential. Kit foxes often den in suitable habitat located adjacent to agricultural areas where they can forage (Bell 1994; Scott-Graham 1994).

The SJKF is included on the USFWS list for all of the quadrangles investigated, with the exception of Millerton Lake East. There are no CNDDB records of SJKF within 5 miles of the project area. Suitable foraging and denning habitat for the SJKF is present in the California grasslands within and adjacent to the project site. On-site orchards offer marginal foraging and unlikely denning habitat. Despite available habitat, SJKFs are unlikely to occur anywhere on the site due to the absence of any known populations of SJKFs in the region, the intensive human presence across the site and surrounding lands, and the presence of numerous domestic dogs on and adjacent to the site that can kill or harass SJKFs.

American Badger. The American badger is designated as a Species of Special Concern by CDFG. This species once occurred throughout California in grasslands and open stages of most shrub, forest, and herbaceous habitats with dry, friable soils from below sea level in Death Valley to 12,000 feet (Long 1973). The American badger is characterized by a stout, muscular, compressed body adapted to digging. The badger forages on other fossorial species, such as ground squirrels, pocket gophers, and rats. Reproduction occurs in summer and fall; young are born following delayed implantation in March and early April (Long 1973). Some predation occurs from coyotes and golden eagles (Seton 1929 and Grinnell 1929 in Long 1973). CNDDB records indicate that there is an occurrence of this species approximately 5 miles south of the project area. The grasslands within the power line route provide suitable habitat for this species.

Designated Critical Habitat

No designated critical habitat for any plant or animal species exists within the boundaries of the project site.

3.5.2 REGULATORY BACKGROUND

Federal

Clean Water Act of 1977

The Clean Water Act (CWA) is intended to restore and maintain the chemical, physical, and biological integrity of the nation's waters (33 CFR 1251). The regulations implementing the CWA protect waters of the United States including streams and wetlands (33 CFR 328.3). The CWA requires states to set standards to protect, maintain, and restore water quality by regulating point source and some non-point source discharges. Under Section 402 of the CWA, the NPDES permit process was established to regulate these discharges. Construction projects that involve ground disturbance of 1 acre or more are required to comply with the NPDES permit process. Project proponents must develop a SWPPP, which outlines BMPs for controlling stormwater runoff from construction sites.

USACE and EPA have jurisdiction over "Waters of the United States." Waters of the United States are classified as Wetlands, Navigable Water, or Other Waters and include marine waters, tidal areas, stream channels, and associated wetlands. Under federal regulations, wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

Endangered Species Act

The federal ESA provides protection for plants and animals listed as threatened or endangered by USWFS and the National Oceanic and Atmospheric Administration (NOAA) Marine Fisheries Service. Section 9 of the Act (50 CFR 17.3) prohibits the take, possession, sale, or transport of any ESA-listed species. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, capture, collect, or attempt to engage in any such conduct" (16 U.S. Code [U.S.C.] Section 1532(19), 1538). Take may also include modification of a species' habitat. For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land, and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S.C. Section 1538(c)).

The ESA requires the federal government to designate critical habitat for any species listed under the ESA. Critical habitat is a specific area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may also include specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

Section 7 of the ESA requires federal agencies to conduct formal consultation with USFWS and/or NOAA for any federal activity that could potentially impact any federally listed species or its critical habitat. USFWS or NOAA must issue a Biological Opinion as to the potential for effect to listed species. USFWS or NOAA may issue an incidental take permit, allowing take of the species that is incidental to another authorized activity, provided that the action will not jeopardize the continued existence of the species.

Section 10 of the ESA provides for issuance of incidental take permits for private actions that have no federal involvement, through the development of an HCP. Effects to federally listed species with no lead federal agency require preparation of an HCP, management agreement, and an analysis prepared in compliance with the National Environmental Policy Act (NEPA).

San Joaquin Valley Operation & Maintenance Habitat Conservation Plan (PG&E HCP)

PG&E developed a multi-species HCP to enable PG&E to continue to conduct current and future O&M activities in the San Joaquin Valley while minimizing, avoiding, and compensating for possible direct, indirect, and cumulative adverse effects on threatened and endangered species that could result from such management activities. PG&E developed the plan in coordination with USFWS and CDFG. The Plan was subject to environmental review under both NEPA and CEQA. The PG&E HCP is a 30-year permit covering PG&E's extensive compliance obligations under the state and federal ESA. The HCP covers 23 wildlife and 42 plant species. Activities covered under the HCP include O&M activities, as well as minor new construction, for PG&E's electric and gas transmission and distribution systems within portions of nine counties including San Joaquin, Stanislaus, Merced, Fresno, Kings, Kern, Mariposa, Madera, and Tulare. The avoidance and minimization measures defined in the HCP were included in the PEA and are considered in the impact analysis. USFWS and CDFG have indicated that the HCP will apply to the proposed project (Appendix A)

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) provides protection for all migratory birds (50 Code of Federal Regulations (CFR) Part 13 (General Permit Procedures) and 50 CFR Part 21 (Migratory Bird Permits)) from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations, or by permit. The MBTA allows USFWS to issue permits to qualified applicants for the following types of activities:

- Falconry
- Raptor propagation
- Scientific collecting
- Special purposes (rehabilitation, education, migratory game bird propagation, and salvage)
- Take of predatory birds, taxidermy, and waterfowl sale and disposal

This protection extends to all migratory birds, parts, nests, and eggs. The full list of species protected under this act can be found in 50 CFR 10.13.

Bald Eagle and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668c) provides protection for bald and golden eagles. This protection extends to eagles, nests, and their eggs. It prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs. The Act also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

State

California Environmental Quality Act

CEQA requires state and local agencies to follow mandated procedures to determine the environmental effects within their jurisdiction that may result from proposed activities.

California Endangered Species Act

The California ESA provides protection for candidate plants and animal species as well as those listed as rare, threatened, or endangered by CDFG. The Act prohibits the take of any such species unless authorized. Section 2081 authorizes the state to issue incidental take permits. The state definition of take applies only to acts that result in the death of or adverse impacts to protected species.

California Fish and Game Code

The California Fish and Game Code require state agencies to comply with regulations that promote the protection and conservation of threatened and endangered species. Regulations in place include:

- California Species Preservation Act – provides for the protection and enhancement of listed species in California
- Fully Protected Species – designates certain species as "fully protected" and prohibits take of these species
- Protection for Birds – makes it unlawful to take, possess, or harm any bird, its nest, or its eggs
- Native Plant Protection Act – prohibits the take of rare, threatened, or endangered plants

Porter-Cologne Water Quality Control Act and Section 401 of the Clean Water Act

The California Regional Water Quality Control Board (SWRCB) administers both the Porter-Cologne Water Quality Control Act and Section 401 of the CWA. The Porter-Cologne Water Quality Control Act, Water Code Section 13260, requires that, "any person discharging waste, or proposing to discharge waste, within any region that could affect the 'waters of the State' to file a report of discharge" with the Regional Water Quality Control Board

(RWQCB). Waters of the State as defined in the Porter-Cologne Act (Water Code Section 13050 (e)) are "any surface water or groundwater, including saline waters, within the boundaries of the state."

Pursuant to Section 401 of the CWA, SWRCB consider waters of the State to include, but not be limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked bay lands, seasonal wetlands, and riparian woodlands. SWRCB has also claimed jurisdiction and exercised discretionary authority over "isolated waters."

Local

Fresno County General Plan

The Fresno County General Plan "is a comprehensive, long-term framework for the protection of the county's agricultural, natural, and cultural resources and for development in the county" (Fresno County General Plan 2000). The Open Space and Conservation Element in the Fresno County General Plan focuses on "protecting and preserving natural resources, preserving open space areas, managing the production of commodity resources, protecting and enhancing cultural resources, and providing recreational opportunities."

3.5.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to biological resources is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Cause a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
B) Cause a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
C) Cause a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
D) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
E) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
F) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

A) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

The San Joaquin Valley Operation & Maintenance HCP defines AMMs to protect sensitive vegetation, wildlife species, and sensitive habitats. The HCP covers construction of up to 1 mile of new electric line and 0.5 acres or less of permanent facilities (substations). PG&E coordinated with USFWS and CDFG regarding coverage of project effects to listed species under the HCP. USFWS and CDFG concurred with PG&E that the proposed power line construction would be permitted under the HCP. However, the substation and distribution line construction are not activities that are permitted under the HCP (Appendix A). The substation and distribution lines would be constructed within disturbed habitats (roadway shoulder and almond orchard) that do not provide suitable habitat for special-status species. Project APMs address construction-related activities associated with the power line,

distribution lines, and Shepherd Substation. The AMMs and APMs presented in this document, as well as the adherence to specific mitigation measures described in this section, would ensure that impacts to biological resources would be less than significant.

Construction

Special-Status Plants

Four special-status plant species have the potential to occur within the 115-kV power line portion of the project area. Succulent owl's clover, dwarf downingia, spiny-sepaled button-celery, and San Joaquin Valley Orcutt grass could potentially occur in the seasonal wetlands and grassland habitats that were identified within the power line alignment (Transcon 2011a; Transcon 2011b). Habitat for these species is not present at the substation in the existing almond orchard or along the distribution alignments. None of these species was recorded during surveys of the project area, although protocol floristic surveys were not performed. Power poles would be placed outside of the boundary of seasonal wetlands; however, there is the potential for indirect impacts to seasonal wetlands that could support special-status plant species. Direct impacts could include accidental damage to habitat or loss of plants. Potential indirect impacts include increased sedimentation, introduction of invasive plants during construction, and spills of hazardous materials.

Succulent owl's clover grows near the margins of vernal pools and swales (USFWS 2010a). The largest threats to this species are habitat loss and fragmentation from urbanization, agricultural conversion, and mining. Nonnative invasive species also pose a threat. The species could occur in the two seasonal wetlands (Figures 3.5-2 and 3.5-3); however, it is unlikely to occur in the smaller of the two seasonal wetlands because this area appears to be routinely disced to create grazing habitat for the private landowner's horses. PG&E would avoid seasonal wetlands by placing structures outside of wetlands (Transcon 2010).

Dwarf downingia and **spiny-sepaled button-celery** may be affected by sedimentation of vernal pools, and construction of the power line in grasslands and along the margins of ponds.

PG&E identified several measures to reduce impacts to special-status plant species:

> **APM Bio-2:** To prevent the spread of noxious weeds, only equipment which has been washed and is free of caked on mud, dirt, and other debris which could house plant seeds will be allowed in the project area.
>
> **APM Bio-6:** In accordance with, and in addition to the training requirements in AMM 1 of the PG&E San Joaquin Valley Habitat Conservation Plan (HCP), worker environmental awareness training will be conducted prior to initiating project construction activities and throughout the duration of construction, such that all new site workers have received training. Worker training will detail sensitive species of the project area and those conservation measures which have been identified to minimize impacts to them. In addition, workers will be informed about the presence, life history, and habitat of these species. Training will also include information on federal and state

laws protecting migratory birds. Documentation of worker training will be available on-site.

APM Bio-8: All work will be done in a manner that minimizes disturbance to wildlife and habitat.

APM Bio-11: Proper spill prevention and cleanup equipment shall be readily available.

APM Bio-12: Worker vehicles and construction equipment shall remain on roadways, identified access routes, and designated areas for construction. Vehicles will not enter sensitive areas unless the necessary permits have been obtained.

APM Bio-13: No pets or firearms are permitted within the project area.

APM Bio-14: Sensitive areas will be clearly flagged or marked. Sensitive areas will be avoided during construction unless the necessary agency permits and/or approvals have been obtained.

APM Bio-19: PG&E will consider the location of seasonal wetlands in the design of the power line. No power line poles will be placed in seasonal wetlands. Prior to construction the perimeter of the seasonal wetland near project construction will be flagged for avoidance.

APM Bio-20: Suitable habitat areas (i.e., seasonal wetlands, ponds, and canals) within the project area will be identified during preconstruction surveys. These areas will be mapped and clearly marked in the field, and will be avoided during construction.

AMMs identified in the PG&E San Joaquin HCP shall also be implemented to avoid adverse effects to listed plants:

AMM 10: If an activity disturbs more than 0.25 acre in a grassland, and the landowner approves or it is within PG&E rights and standard practices, the area should be returned to pre-existing conditions and broadcast-seeded using a commercial seed mix. Seed mixtures/straw used for erosion control on projects of all sizes within grasslands will be certified weed-free. PG&E shall not broadcast (or apply in other manner) any commercial seed or seed-mix to disturbance sites within other natural land-cover types, within any vernal pool community, or within occupied habitat for any plant covered species.

AMM 12: If a covered plant species is present, a qualified biologist will stake and flag exclusion zones of 100 feet around plant occupied habitat (both the standing individuals

and the seed bank individuals) of the covered species prior to O&M[1] activities[2]. (Note: AMM 11 addresses elderberry plants and valley elderberry longhorn beetle.)

AMM 13: If a covered annual plant species is present, O&M activities will occur after plant senescence and prior to the first significant rain to the extent practicable.

AMM 14: If a covered plant species is present, the upper 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards. (This measure will be used as an AMM for narrow endemic plants only after approval by USFWS and DFG during the Confer Process.)

Revegetation efforts could introduce nonnative species and nonnative species could establish in disturbed areas. Thirteen invasive plant species listed by the California Department of Food and Agriculture and/or the California Invasive Plant Council were identified within the grassland habitat that would be disturbed during construction of the new power line. The proposed project would not control invasive species within areas temporarily disturbed by construction due to the abundance of invasive species currently occupying the area. The proposed construction would have a less than significant impact on the introduction of invasive weeds, since invasive weeds already occupy the area. Project activities in grassland habitat could impact special status plant species. Mitigation Measure Biology-1 would avoid the potential for significant impacts.

Mitigation Measure Biology-1: PG&E shall conduct a pre-activity survey of those portions of the project that occur within native or naturalized areas (the project route from Perrin Avenue to Shepherd Avenue). The survey should be conducted during the appropriate flowering season to identify sensitive plants that have the potential to occur within the project area. The width of the pre-activity survey will be 200 feet on the westerly side of the new power line and to the extent of PG&E's right-of-way on the easterly side. The survey will consist of walking parallel transects spaced approximately

[1] The term O&M, as used in the HCP applies to the construction of the proposed power line. Future O&M of the new substation, power line, and distribution lines would be considered a separate project under the HCP.

[2] If an exclusion zone cannot extend the specified distance from the habitat, the biologist will stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels). Measures are practicable where physically possible and not conflicting with other regulatory obligations or safety considerations; O&M activities will be prohibited or greatly restricted within restricted activity zones. However, vehicle operation on existing roads and foot travel will be permitted. A qualified biologist will monitor O&M activities near flagged exclusion and restricted activity zones. Within 60 days after O&M activities have been completed at a given worksite, all staking and flagging will be removed.

50 feet apart to provide 100 percent visual coverage of the construction site and adjacent lands. The surveyors will map the location of all sensitive plants identified during the survey on drawings of the project site, noting the distance to construction areas, access roads, and laydown areas. If sensitive plant species are present, AMM-12, AMM-13, and AMM-14, shall be implemented.

Through the implementation of the APMs and the identified mitigation measures, potentially significant impacts to special-status plants would be reduced to a less-than-significant level.

Special-Status Wildlife

Invertebrates. The special-status vernal pool fairy shrimp, midvalley fairy shrimp, California linderiella, and Molestan blister beetle could potentially occur within the project site. Special-status vernal pool fairy shrimp, midvalley fairy shrimp, and California linderiella could potentially occur within the seasonal wetlands identified within the 115-kV power line alignment. These species were not observed during reconnaissance surveys of the project area; however, protocol surveys sufficient to prove absence were not performed. Habitat for the vernal pool fairy shrimp, midvalley fairy shrimp, and California linderiella is absent from the almond orchard where the substation would be constructed and from the distribution alignments. There are several vernal pool fairy shrimp records within 5 miles of the project area in vernal pool habitats north of E. Copper Avenue. There are several records for both the midvalley fairy shrimp and California linderiella east of the project area, but there have been no observances within the power line ROW. PG&E would avoid direct impacts to seasonal wetland habitat that could support vernal pool fairy shrimp, midvalley fairy shrimp, and California linderiella by adhering to APM Bio-19, APM Bio-20, and AMM 15. These measures require that power poles be located outside of seasonal wetlands and that sensitive habitats (including wetlands) are flagged in the field and avoided.

AMM 15: If vernal pools are present, a qualified biologist will stake and flag an exclusion zone prior to O&M activities. The exclusion zone will encompass 250 feet. Work will be avoided after the first significant rain until June 1, or until pools remain dry for 72 hours.

Potential indirect impacts to seasonal wetlands could include loss of habitat through sedimentation or through water quality impacts (hazardous material spills). Potential indirect impacts would be less than significant by adhering to APM Bio-6, APM Bio-11, APM Bio-12, and AMM 6.

Project impacts to the vernal pool fairy shrimp, midvalley fairy shrimp, and California linderiella would be less than significant.

The Molestan blister beetle could potentially occur within the project site. The grassland habitats of the site within the vicinity of seasonal wetlands provide suitable habitat for nesting and forage. The almond orchard that is the site of the proposed substation does not provide suitable habitat for the Molestan blister beetle. No direct impacts to wetlands or waters are proposed as a part of the project; however, direct impacts to Molestan blister

beetle could occur from construction in grassland areas. Indirect impacts to Molestan blister beetle could occur as a result of increased construction noise levels and human activity in the area. Mitigation Measure Biology-2 would be implemented to reduce impacts to Molestan blister beetle to a less-than-significant level.

> **Mitigation Measure Biology-2:** A preconstruction survey for Molestan blister beetle shall be conducted by a qualified biologist within 30 days prior to the start of ground-disturbing construction activities. The width of the pre-activity survey will be to the extent of the power line easement and predetermined access routes that may fall outside of the easement area within suitable habitat (grasslands). If Molestan blister beetles are encountered, the biologist shall flag an exclusion zone of 25 feet around the occupied habitat. If a smaller exclusion zone is required, the exclusion zone diameter will be determined by the project biologist based on field conditions and construction activities. The exclusion zone shall be subject to review by CPUC.

Fish. The project area and immediate vicinity contain no habitat for any special-status fish species. Therefore, no project impacts to special-status fish species would occur.

Amphibians. Two special-status amphibian species, CTS and western spadefoot toad, potentially occur within the project site. The seasonal wetlands located within the power line alignment could provide potential breeding habitat for CTS. The grassland areas along the power line alignment could provide potentially suitable aestivation habitat for CTS. The almond orchard that is the site of the proposed substation does not provide suitable habitat for CTS. CTS is not likely to occur along the distribution lines.

No poles would be constructed within any seasonal pools and all potential CTS breeding habitat identified along the power line alignment would be avoided. However, construction would take place within CTS dispersal and aestivation habitat. There is the potential for direct impacts to CTS if individuals were to occur within the grassland areas where construction would take place. Salamanders could be crushed by construction vehicles or equipment. If present, CTS could be disturbed by increased construction-related noise and human activity, avoid the area, and/or or change breeding habits.

USFWS considers all potentially suitable upland habitats within 1.25 miles of potential breeding habitat to be CTS-suitable habitat. The permanent and temporary impacts from pole installation would occur within suitable CTS habitat. PG&E considered suitable CTS dispersal and aestivation habitat to be upland areas within 2,000 feet of suitable CTS breeding habitat, based on studies performed on CTS located near Olcott Lake in Solano County, California (Searcy and Shaffer 2008; Trenham and Shaffer 2005). In the project area, most of the land within 2,000 feet of potential breeding ponds is suitable for CTS dispersal and aestivation, with the exception of areas occupied by houses or orchards.

The majority of potential impacts within dispersal and aestivation habitat would be temporary, but could result from construction noise, construction-induced ground vibration, soil compaction, and ground disturbance. Habitat fragmentation is not expected because most habitat would remain unaltered. Permanent habitat loss would be limited to small

areas occupied by new pole foundations. No more than eight poles would be installed within 2,000 feet of potential CTS breeding habitat, and no more than five of these poles would be located in suitable CTS aestivation habitat (i.e., habitat other than orchards), which would result in the loss of approximately 0.01 acre of habitat. Temporary disturbance associated with installation of the power line would not impact more than 2 acres of habitat. Pursuant to PG&E's San Joaquin Valley Operation & Maintenance HCP, PG&E would implement the following APM and AMM to ensure that impacts to the CTS would be less than significant.

> **APM Bio-25:** To the extent that the terms of these APMs conflict with subsequently negotiated terms and conditions of any state and/or federal environmental permit, the subsequent permit conditions will supersede the terms of these APMs.
>
> **AMM 17**: If suitable habitat for covered amphibians and reptiles is present and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to O&M activities involving excavation. If necessary, barrier fencing will be constructed around the work site to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an exclusion zone of 50 feet around the potentially occupied habitat. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt-nosed leopard lizard and limestone salamander) are moved to nearby suitable habitat.

PG&E is in the process of consulting with USFWS and CDFG on impacts to CTS. PG&E would comply with all conditions and conservation measures recommended by CDFG and USFWS to minimize impacts to CTS.

There is no designated CTS critical habitat within the project area. The nearest critical habitat for CTS is located approximately 3 miles north of the project area.

The western spadefoot toad (a CDFG species of concern) could potentially occur within the seasonal wetlands, pools, and manmade ponds identified within or adjacent to the power line alignment. Additionally, the grassland habitats of the site within the vicinity of seasonal wetlands provide suitable aestivation habitat. The almond orchard that is the site of the proposed substation does not provide suitable habitat for the western spadefoot toad. No direct impacts to wetlands or waters are proposed as a part of the project; however, direct impacts to western spadefoot toads could occur from construction in the grassland areas. Indirect impacts to western spadefoot toad could occur as a result of increased construction noise levels and human activity in the area. The toads may avoid the area, which could affect reproductivity.

The project applicant identified several measures to reduce potential direct and indirect impacts to special-status amphibians, most of which apply to CTS but are equally pertinent to western spadefoot toads: APM Bio-7, APM Bio-12, APM Bio-14, APM Bio-18, APM Bio-19, APM Bio-20, and APM Bio-22.

APM Bio-7: In accordance with the monitoring requirements in AMMs 15 and 17 of the HCP, a biological monitor will be onsite during ground disturbing activities with the potential to disturb habitat near flagged exclusion and restricted activity zones in order to minimize impacts to salamanders. Before the start of work each morning, the biological monitor will check under all equipment and stored supplies left in the work area overnight within 600 feet of suitable habitat for listed species with a potential to occur in the area. The monitor will have the authority to stop work or determine alternative work practices in consultation with agencies and construction personnel, as appropriate, if construction activities are likely to impact sensitive biological resources. The biological monitor will document monitoring activities in a daily log summarizing construction activities and environmental compliance.

APM Bio-18: All pole holes will be backfilled or covered at the end of the work day by a method that would restrict any wildlife from entering the hole from the surface, and to prevent human injury.

APM Bio-22: Additional conservation measures and/or mitigation recommended by the USFWS and CDFG through consultation for the California tiger salamander will be incorporated into the project. Any APMs that conflict with permits issued by the USFWS and/or CDFG will be superseded by those resource agency permit requirements.

Through the implementation of the APMs and AMMs identified, potentially significant impacts to special-status amphibians would be reduced to a less-than-significant level.

Reptiles. There is the potential for the western pond turtle (a CDFG species of concern) to occur within the ponds, irrigation ditch, and canal within the power and distribution line alignments. Impacts to the western pond turtle are not likely, as work will not directly disturb the ponds, irrigation ditch, or canals along the power line and distribution line alignments. If present within the ponds, western pond turtle could be temporarily disturbed by increased noise and human activity. The species could also be harmed in upland areas during construction. APM Bio-7, APM Bio-18, APM Bio-20, and AMM 17 would be implemented during construction to minimize impacts to western pond turtle. Through the implementation of these APMs and AMMs impacts to reptiles would be less than significant.

Birds. The project area could potentially provide habitat for two special-status species, the burrowing owl and tricolored blackbird. The almond orchard encompassing the substation site is not suitable habitat for the burrowing owl. Nearly all habitat along the proposed power line alignment that is not occupied by housing, associated infrastructure, orchards, canals, or ponds, however, would be considered suitable habitat for burrowing owls. Additional potential habitat for the burrowing owl is present along the edges of the orchards in the project area. If project activities occur within the burrowing owl breeding season (February 1 through August 31), disturbance from project activities could lead to nest failure or abandonment. If project activities occur outside of the breeding season, disturbance from project activities could result in the disruption of normal foraging habits and possible mortality of individuals in their burrows due to grading activities. Significant, permanent

loss of habitat is not anticipated as the substation site is not located within burrowing owl habitat. The power line will impact a negligible amount of habitat, and the distribution lines would not result in permanent loss of habitat.

The project is expected to have limited potential for impacts to the tricolored blackbird. This species is unlikely to breed in the project area due to the lack of suitable dense vegetation along water features. The proposed project would not result in permanent loss of breeding habitat for this species and a negligible impact, if any, on foraging habitat would result from the project.

The project would have the potential to impact bird species protected under the MBTA. Biological field reviews identified no nests or occupied burrows in areas to be impacted by the project. However, new nests could be built prior to construction and project construction initiated during avian breeding season could destroy active nests or lead to nest abandonment through tree removal and other construction activities. In addition, the power line could potentially cause bird fatalities through electrocution.

To reduce impacts to breeding birds and tricolored blackbird, the applicant has proposed the following: APM Bio-6, APM Bio-8, APM Bio-9, APM Bio-13, APM Bio-24, and AMM-10.

> **APM Bio-9:** All food waste and associated containers will be disposed of in closed lid containers.
>
> **APM Bio-24:** Avian Power Line Interaction Committee Guidelines in accordance with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006[3] will be incorporated into the power line design to minimize the likelihood of avian electrocutions.

To further reduce impacts to special-status birds and migratory birds, Mitigation Measure Biology-3 and Mitigation Measure Biology-4 would be implemented.

> **Mitigation Measure Biology-3:** Within 30 days of construction, a qualified biologist shall conduct a pre-activity survey within the suitable habitat for burrowing owl to determine this species' presence or absence. The width of the pre-activity survey will be 500 feet on the westerly side of the new power line, and to the extent of PG&E's right-of-way on the easterly side. The survey will consist of walking parallel transects spaced approximately 100 feet apart to provide 100 percent visual coverage of the construction site and adjacent lands. If western burrowing owls are present at the site, AMM-18 shall be implemented.
>
> **AMM 18:** If western burrowing owls are present at the site, a qualified biologist will work with O&M staff to determine whether an exclusion zone of 160 feet during the non-

[3] Avian Power Line Interaction Committee. 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C., and Sacramento, California.

nesting season and 250 feet during the nesting season can be established. If it cannot, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.

Mitigation Measure Biology-4 (proposed to supersede APM Bio-23): If construction activities are scheduled to occur during the avian breeding season (February 28 to August 31), a preconstruction survey for migratory birds shall be conducted by a qualified biologist within 30 days prior to the start of ground-disturbing construction activities. The width of the pre-activity survey for raptor nests will be in vegetation within 500 feet on the westerly side of the new power line alignment and up to 500 feet on the easterly side of the alignment, where access is available. At a minimum, the survey will be to the extent of PG&E's right-of-way on the easterly side. For smaller avian species, the maximum width of the survey will be in vegetation 250 feet on the westerly side of the new power line alignment and up to 250 feet on the easterly side of the alignment where access is available. At a minimum, the survey will be to the extent of PG&E's right-of-way on the easterly side. The results of the survey shall be reported to the CPUC prior to construction. If active nests are found, appropriate buffers between construction activities and the nest will be established to ensure nests are not abandoned due to project activities. The buffers shall be 50 feet for passerines and 250 feet for raptors. Work within the buffers shall not proceed until the nestlings have fledged or the nest becomes inactive, unless otherwise agreed to by the resource agency with jurisdiction over the species.

Implementation of the proposed mitigation measure and APMs would reduce impacts to special-status and migratory birds to a less-than-significant level.

Mammals. Two special-status mammal species, the SJKF and American badger, have the potential to occur within the project site. The project area occurs along the eastern edge of the area historically occupied by the SJKF. Extensive research has not been conducted on the current distribution of SJKF in the project vicinity; however, numerous kit fox surveys conducted in the project vicinity have failed to find evidence of SJKF occupation. Furthermore, there are no CNDDB records of the SJKF within 5 miles of the project area. According to the USFWS 1998 Recovery Plan for Upland Species of the San Joaquin Valley, there are three core populations currently in existence. Two core populations, the Carrizo Plain Natural Area (San Luis Obispo County) and the natural lands of western Kern County (i.e., Elk Hills, Buena Vista Hill, Buena Vista Valley, and Lokern Natural Area), are far removed from the project area. The third core population is in the Ciervo-Panoche Natural Area, which is located along the Fresno and San Benito County borders. Although this population occurs within Fresno County, it is located more than 50 miles west of the project area. Given the distance of known kit fox populations, the presence of numerous domestic dogs within the project site, the project proximity to human activity, and the absence of any

evidence of kit fox habitation of the site during reconnaissance field surveys, the potential for the SJKF to reside within the project area is extremely low.

In the unlikely event that a transient kit fox takes up residence on the site prior to construction, AMM 21 and Mitigation Measure Biology-5 would reduce impacts to SJKF to less than significant.

> **AMM 21:** If San Joaquin kit fox dens are present, their disturbance and destruction will be avoided where possible. However, if dens are located within the proposed work area and cannot be avoided during construction, qualified biologists will determine if the dens are occupied. If unoccupied, the qualified biologist will remove these dens by hand excavating them in accordance with USFWS procedures (U.S. Fish and Wildlife Service 1999). Exclusion zones will be implemented following USFWS procedures (U.S. Fish and Wildlife Service 1999) or the latest USFWS procedures. The radius of these zones will follow current standards or will be as follows: Potential Den—50 feet; Known Den—100 feet; Natal or Pupping Den—to be determined on a case-by-case basis in coordination with USFWS and DFG. Pipes will be capped and exit ramps will also be installed in these areas to avoid direct mortality.
>
> **Mitigation Measure Biology-5:** A preconstruction survey shall be conducted within 30 days of construction to determine the presence or absence of SJKF. This survey shall be conducted within suitable habitat and entail inspection of all burrows within 250 feet of the project site or to the extent of PG&E's right-of-way. If potential dens are detected, these dens shall be monitored using tracking medium and/or remote cameras for three nights to determine if SJKF inhabit them. If SJKF are found to be absent from the site the project can move forward with no further consideration of this species. If SJKF are found inhabiting the site or surrounding lands during the survey the measures identified in AMM 21 shall be implemented.

American badger could potentially migrate through and create dens within the grassland habitat located along the power line alignment. While the closest observance of this species is approximately 5 miles south of the distribution line at Sunnyside Avenue, and the habitat between this occurrence and the project site is developed and highly disturbed, there is the potential for the species to migrate through or occupy the project area. The species could be impacted by mortality from ground-disturbing activities, or from construction-related noise causing the species to avoid the area. Implementation of Mitigation Measure Biology-6 would reduce impacts to American badger to less than significant.

> **Mitigation Measure Biology-6:** A survey for active dens of American badgers shall be performed by a qualified biologist within 30 days prior to construction grading or land clearing. Surveys shall be conducted within suitable habitat. The width of the pre-activity survey will be 250 feet on either side of the construction area or to the extent of PG&E's right-of-way. Construction may proceed once it is determined that there are no active dens in the survey area. If active dens are present, the dens shall be avoided during the

breeding season and a 50-foot buffer around the den sites shall be established. Smaller buffers may be established through consultation with CDFG.

Operation and Maintenance

O&M of the substation, 115-kV power line, and 21-kV distribution lines would be subject to the AMMs identified in PG&E's San Joaquin Valley Operation and Maintenance HCP. Specifically, AMM 1, AMM 2, AMM 3, AMM 4, AMM 5, AMM 6, AMM 7, AMM 9, AMM 10, AMM 12, AMM 13, AMM 14, AMM 15, AMM 17, AMM 18, AMM 21, AMM 29, and AMM 30 would be adhered to during the O&M phase of the proposed project. The AMMs identified in the HCP would reduce potential impacts to special-status species to a less-than-significant level.

AMM 1: Employees and contractors performing O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.

AMM 2: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

AMM 3: The development of new access and ROW roads by PG&E will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

AMM 4: Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.

AMM 5: Trash dumping, firearms, open fires (such as barbecues) not required by the O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.

AMM 6: No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

AMM 7: During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone [RCZ]), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.

AMM 9: Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.

AMM 22: All vegetation management activities will implement the nest protection program to avoid and minimize effects on Swainson's hawk, white-tailed kite, golden

eagle, bald eagle, and other nesting birds. Additionally, trained pre-inspectors will use current data from DFG and CNDDB and professional judgment to determine whether active Swainson's hawk, golden eagle, or bald eagle nests are located near proposed work. If pre-inspectors identify an active nest near a proposed work area, they will prescribe measures to avoid nest abandonment and other adverse effects to these species, including working the line another time of year, maintaining a 500-foot setback, or if the line is in need of emergency pruning, contacting the HCP Administrator.

AMM 29: No herbicide will be applied within 100 feet of exclusion zones, except when applied to cut stumps or frilled stems or injected into stems.

AMM 30: Trees being felled in the vicinity of an exclusion zone will be directionally felled away from the zone, where possible. If this is not feasible, the tree will be removed in sections.

B) Would the project cause a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFG or the USFWS?

Construction. No riparian habitat was identified along the drainage ditches and ephemeral drainages. The only potentially sensitive natural community within the project area consists of two seasonal wetland areas. The seasonal wetlands were identified within the power line alignment. Power line poles would be placed outside of seasonal wetlands in accordance with APM Bio-19, thereby avoiding impacts to these areas. Therefore, the project would have a less-than-significant impact on riparian habitat or sensitive natural communities and no mitigation would be required.

Operation and Maintenance. O&M of the substation, 115-kV power line, and 21-kV distribution line would have a less-than-significant impact on riparian habitat or other sensitive natural community with the implementation of AMM-15. Riparian habitat is absent from the project site and vernal pools would not be impacted during O&M activities.

C) Would the project cause a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Construction. The project as proposed would avoid impacts to federally protected wetlands as defined by Section 404 of the CWA. Two seasonal wetlands were identified within and adjacent to the power line alignment. The proposed power line would span the seasonal wetlands to avoid direct impacts to these features as required by APM-19. The power line, substation, and distribution lines would have no direct effect on Section 404 waters because the project would span or bore/drill beneath water features, thereby avoiding direct impacts in accordance with APM WQ-2 (Section 3.9). Due to the isolated nature of the seasonal wetlands and lack of hydrologic connectivity with a traditionally navigable water, the

seasonal wetlands within the project area are likely not subject to federal jurisdiction under Section 404 of the CWA.

Indirect effects, such as sedimentation to wetlands and other waters within the vicinity of the project, would be avoided through the implementation of proper sediment and erosion control BMPs in accordance with AMM 9 and Geo-1/WQ-1 (Section 3.7). No other wetlands were identified within the project area, including the substation and distribution line alignments. Through the avoidance of wetland resources, the proposed project would have a less-than-significant impact on waters and wetlands potentially subject to federal jurisdiction under Section 404 of the Clean Water Act. The impact would be less than significant and no mitigation is required.

Operation and Maintenance. O&M of the project would be conducted outside of wetland areas in accordance with AMM-15; therefore no impacts to wetlands would occur.

D) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Construction. The project area is not known to be a migratory route for wildlife species and would not significantly affect the movements of resident wildlife on the project site and project vicinity. Construction would be conducted within limited areas and would not restrict migration in the surrounding area. Construction of the power line is not likely to cause a barrier to wildlife movement because areas surrounding the immediate construction site would remain permeable. The existing almond orchard and roadside areas where the substation and distribution lines would be constructed are not likely to be used by migratory wildlife as they are highly disturbed habitats.

No migratory fish habitat occurs on the project site or within the immediate vicinity. Seasonal wetlands that may act as nursery sites for CTS or fairy shrimp would be avoided through the implementation of APM Bio-19, APM Bio-20, and AMM 15. There is the potential for CTS, western spadefoot toad, western pond turtle, migratory birds, SJKF, and American badger to migrate through the project site. Implementation of AMM 17, AMM 18, AMM 22, APM Bio-7, Mitigation Measure Biology-3, Mitigation Measure Biology-4, Mitigation Measure Biology-5, and Mitigation Measure Biology-6 would reduce potential impacts to migratory wildlife. Therefore, the project would result in a less-than-significant impact to wildlife movement or native wildlife nursery sites.

Operation and Maintenance. O&M of the project facilities would have no impact on wildlife or fish movements or the obstruction of wildlife nursery sites. The proposed power line would not create a barrier to movement that would obstruct species migration. O&M of the project would have a less-than-significant impact on migratory wildlife.

E) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Construction. The proposed project would not conflict with local policies or ordinances protecting biological resources, based on a review of General Plan policies.

Operation and Maintenance. The proposed project would not conflict with local policies or ordinances protecting biological resources, based on a review of General Plan policies.

F) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Construction. The only HCP for the project area is the San Joaquin Valley O&M HCP. This HCP was developed by PG&E and PG&E would comply with the requirements of the HCP during the construction, operation, and maintenance phases of the project. No other HCPs, Natural Community Conservation Plans, or other plans are known to exist for projects in the Clovis area. The project would, therefore, not conflict with any adopted or approved HCP or Natural Community Conservation Plan.

Operation and Maintenance. The San Joaquin Valley O&M HCP would be implemented for the O&M phase of the proposed project including the substation, 115-kV power line, and 21-kV distribution lines. PG&E is committed to implementing applicable AMMs and to adhering to all mitigation mechanisms of the HCP for any impacts to covered species. No other HCPs, Natural Community Conservation Plans, or other plans are known to exist for projects in Fresno County or the City of Clovis.

3.6 CULTURAL RESOURCES

3.6.1 ENVIRONMENTAL SETTING

Information presented in this section was compiled from the Cultural Resources Inventory Report, Shepherd Substation, Fresno County, CA, and Supplemental Cultural Resources Inventory Report, Shepherd Substation, Fresno County, CA (Transcon 2010 and 2011).

Archaeology

Prehistory

Human occupation of the western San Joaquin Valley likely has its origins in the late Pleistocene, dating from as early as 12,000 years ago. Sizable populations first appeared in the region with the Western Pluvial Lake Tradition, especially around Tulare and Buena Vista lakes, dating from between 11,000 and 7,000 before present (BP).

Subsequent occupation of the region is typically divided into the Early (8,000-4,000 BP), Middle (4,000-1,500 BP), and Late (1,500 BP-historic) horizons, which are mainly differentiated on the basis of technology, trade items, and burial patterns. Occupants were oriented to an acorn-gathering and hunting way of life. Trade relationships were maintained with peoples of the Delta and the Sierra Nevada, as well as the central and southern coasts.

Prehistoric archaeological resources in the region tend to be located on benches, terraced areas, areas of exposed bedrock or lithic sources, and near water sources. A paucity of these within the project study area, as well as intensive past and current cultivation and development, diminish the potential for presence of resources. Riddle (2002) has suggested that up to 90 percent of all archaeological sites in the region have been largely destroyed. Prehistoric sites known to be within this region are primarily extensive midden deposits near watercourses or bedrock milling features.

Ethnography

The project area passes through the region of the ethnohistoric Southern Valley Yokuts (Latta 1977). Their two major settlements, *Pohoniu* and *Yokau*, are located in the foothills well to the east of the project (Kroeber 1976). At these locations, along waterways, tule roots often substituted for acorns and the reeds of the tule were used to construct watercraft.

History

The San Joaquin Valley was explored sporadically by the Spanish in the late 18th and early 19th centuries during the course of the search for a shorter route from Sonora, Mexico, to Monterey, California; while searching for fugitive Indians who fled coastal missions; and while scouting for new mission sites. The first Americans settled the area in the 1820s and 1830s. In 1846 the Mexican government granted General José Castro the 48,800-acre Rancho Rio del San Joaquin. By the early 1850s agricultural pursuits, especially cattle raising, became more common in the valley.

The pace of development of the region greatly accelerated with the coming of the Southern Pacific Railroad in the early 1870s. Agriculture in the region was fueled by the construction

of canals heading off of the Kings River. The first was the Fresno Canal (1872) followed by the Gould and Enterprise canals dug in the late 1870s and early 1880s. The immediate project area was known as the Big Dry Creek or Mississippi District and was watered by the Enterprise Canal. It was originally used for the winter grazing of sheep; the area later was settled by homesteaders.

Defining Archaeology and Historical Resources

Discretionary actions undertaken by state or local governments in California, unless otherwise exempted, must comply with CEQA Statutes and Guidelines. Enacted in 1971, CEQA directs lead agencies to first determine whether a cultural resource is "historically significant." In the protection and management of the cultural environment, CEQA guidelines provide definitions and standards for cultural resources management. The term "historical resource" has the following definitions:

1. A resource listed in, or determined to be eligible by, the State Historical Resources Commission for listing in the California Register of Historical Resources (CRHR).
2. A resource included in a local register of historical resources or identified as significant in a historical resource survey shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site area, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a cultural resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the CRHR, including any the following:
    a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    b. Is associated with the lives of persons important in our past;
    c. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values; or
    d. Has yielded, or may be likely to yield, information important in prehistory or history.

The term "unique archaeological resource" has the following meaning under CEQA:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historical event or person [Public Resources Code Section 21083.2(g)].

Methodology

Information on cultural resources was compiled from published literature, maps, and online tools. The review of the project site for cultural resources included the following:

- Literature review
- Consultation with experts knowledgeable in the cultural resources of the region
- Consultation with Native Americans
- Field investigation

Archaeology and Historic Resources

Records Search Results. A records search at the Southern San Joaquin Valley Archaeological Information Center, housed at California State University, Bakersfield, was conducted for the project area. Additional resources that were researched included the following:

- National Register of Historic Places
- California Historical Landmarks
- California Points of Historical Interest
- State of California Office of Historic Preservation
- California Inventory of Historic Resources
- Local inventories, lists, and historic maps

Eleven previous cultural resources investigations have been conducted within 1 mile of the substation and power line and distribution line alignments (Table 3.6-1). As a result of the prior cultural resources investigations, 26 previously recorded sites, historic locations, or possible locations of archaeological materials were identified within the study area. Previously recorded sites are identified in Table 3.6-2. Of the 26 sites, three are within the area of the proposed distribution line alignments. No previously recorded sites were identified within the proposed power line alignment or substation location.

Table 3.6-1: Resource Investigations Within 1 Mile of the Substation and Power Line

Project #	Reference	Coverage of Survey Area
FR-000074	Baker 1978	No
FR-000107	Beck n.d.	No
FR-000492	Kus 1992a	No
FR-000493	Kus 1992b	No
FR-000534	McGowan 1991	Yes
FR-001084	Wren 1992	Yes
FR-001870	Nadolski 2001	No
FR-002062	Thal 2004	No
FR-002203 (6 parcels)	Varner 2006	Yes
FR-002204	Jones 2006	No
FR-002289	Nettles and Baloian 2006	Yes

SOURCE: Transcon 2010; Transcon 2011

Table 3.6-2: Previously Recorded Resources Within 1 Mile of the Project Area

Designation	Description
P-01-005511	circa 1911–1913 West Branch Helm Colonial Ditch
Enterprise Canal	circa 1880s irrigation canal
Historic Structures	
A-7/C-9	circa 1900-1920 house/packing shed/area
A-9	circa 1930s(?) residence
A-10	circa 1891 farmhouse
A-11	residence, predates 1922
A-12	circa 1940s(?) farmhouse
A-13	1956 residence
A-14	standing remains of 1914 Garfield School
Potential Archaeological Locations and Landscaping	
B-1	1976 bridge #42C0246 on Enterprise Canal
B-2	B-2 1925 bridge #42C0300 on Enterprise Canal

Table 3.6-2 *(Continued)*: Previously Recorded Resources Within 1 Mile of the Project Area	
Designation	**Description**
B-3	B-3 1970 bridge #42C0586 on Enterprise Canal
C-1	C-1 circa 1922-1930 farm location
C-2	large palms demarcating driveway
C-3	circa 1922 farm complex/demolished 1964
C-4	eucalyptus demarcating non-extant farm
C-5	burned farm complex; predates 1922
C-6	circa 1937 large palm and line of trees
C-7	circa 1891 farm location
C-8	circa 1892-1922 farm location
C-9/A-7	circa 1900-1920 packing shed and residence location
C-11	circa 1930s residence location
C-12	circa 1891 farm location
C-13	circa 1922 residence location
C-14	1914 Garfield School location
C-15	circa 1917 vineyard headquarters/demolished

SOURCE: Transcon 2010; Transcon 2011

Field Inventory Results. An initial pedestrian survey of the project area using transect intervals of 10 meters (33 feet) was conducted on June 29 and 30, 2010, in accordance with standard archaeological practices for central California. A 100-foot buffer area around the proposed substation and power line were also surveyed. No new archeological sites, historic structures, or isolated occurrences of cultural material were identified during the survey (Transcon 2010).

A subsequent pedestrian survey of the distribution lines was conducted on August 10, 2011. The August 2011 pedestrian survey consisted of an archaeologist walking a single transect centered on each distribution circuit alignment. The three previously recorded cultural resources were relocated and reexamined in the field:

- The West Branch Helm Colonial Ditch diverges from Enterprise Canal near the intersection of Sunnyside Avenue and Shepherd Avenue. This irrigation ditch dates to 1911–1913 and was constructed by the Fresno Canal and Land Company. No project activities would be located within the immediate vicinity of this feature.

- B-3 is a vehicular bridge (#42C0586) where North Shepherd Avenue crosses Enterprise Canal. The bridge, which was constructed in 1970, was determined Not Eligible for National Register of Historic Places (NRHP) listing by the California Department of Transportation and reported in the January 2006 update of the California Historic Bridge Inventory, Local Agency Bridges.
- The 1880s-era Enterprise Canal will be crossed by proposed distribution circuits at two locations. The Shepherd Avenue West 21-kV Distribution Line will be installed in a boring beneath the canal. This location is adjacent to the circa-1970 vehicular bridge. The canal was lined with concrete at the same time (Nettles and Baloian 2006). The Sunnyside Avenue South 21-kV Distribution Line is proposed to cross the canal aerially, attached to wood poles. This location is also adjacent to a recently constructed vehicular bridge, although this portion of the canal has not been lined with concrete.

The U.S. Bureau of Reclamation (USBOR) consulted with the California State Historic Preservation Office (SHPO) regarding the NRHP eligibility of, and effects to, Enterprise Canal.

The California SHPO determined that:

> "*At present the Bureau of Reclamation lacks the resources to fully evaluate the 28-mile-long Enterprise Canal and its appurtenant structures and features, but acknowledges that it is likely eligible for the National Register of Historic Places (NRHP) for its importance in the development of northern Fresno County and the Cities of Fresno and Clovis. For the purposes of this undertaking, the Bureau of Reclamation will treat the Enterprise Canal as eligible for the NRHP under Criterion A...*(CA SHPO 2009)."

Because of this determination, the Enterprise Canal should be considered a historical resource under CEQA. The fact that the resource has not been previously listed does not preclude it from being determined a historical resource as defined in Public Resources Code Section 50201(j).

Native American Consultation

NAHC was contacted for a review of the Sacred Lands Inventory on January 9, 2009 regarding the substation and power line, and subsequently regarding the distribution lines in 2012. In its January 27, 2009, and March 26, 2012, response letters (Appendix B), NAHC noted that no Native American cultural resources were listed in its files. NAHC supplied a list of 12 Native American individuals from 11 organizations who may have knowledge of cultural resources in the project area. Letters and a map of the proposed project area were sent to the individuals on the list on November 3, 2010, and on April 6, 2012. Table Mountain Rancheria of Friant, California, was the only contact that responded with interest in the project. On December 29, 2010, Table Mountain Rancheria requested a copy of the cultural

resources inventory and it was sent to them on January 4, 2011; no other concerns were cited after receipt of the letter.

Paleontological Resources

Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on Earth. Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. They include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Fossils are considered nonrenewable resources because the organisms they represent no longer exist. Once destroyed, a fossil can never be replaced.

The U.S. Bureau of Land Management uses a classification system to designate the paleontologic sensitivity of geologic units. Paleontologic "sensitivity" is defined as the potential for a geologic unit to produce scientifically significant fossils. This sensitivity is determined by rock type, past history of the rock unit in producing significant fossils, and fossil localities that are recorded from that unit. Geologic units with "High" paleontologic sensitivity are known to contain paleontological localities with rare, well-preserved, critical fossil materials for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleobiology and evolutionary history (phylogeny) of animal and plant groups.

The project alignment area is situated on one Quaternary-age geologic unit. The Riverbank Formation rock unit has been dated as Middle Pleistocene in age (130,000 to 450,000 years) (Marchard and Allwardt 1981) and underlies the entire project area. The Riverbank Formation consists predominantly of weakly consolidated reddish-brown to pink siltstones, sandstones, and pebble to cobble conglomerates with thin intervals of brick-red claystone (Fisk and Cornelius 2007) that occur as low alluvial plains and fans (Poland and Evenson 1966) derived from the nearby Sierra Nevada Range. The Riverbank Formation rock unit is designated with "High" paleontologic sensitivity. Fossils have been identified within this unit in the project vicinity.

The University of California Museum of Paleontology database of known paleontological sites in Fresno County indicated that one nearby paleontological site yielded 151 Pleistocene fossils, including birds and reptiles from an agricultural site located approximately 7 miles from the project area (Transcon 2010).

3.6.2 REGULATORY SETTING

Federal

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) regulates actions on federal land that may have an effect on historic properties that are listed or eligible for inclusion on NRHP. Cultural properties that could be discovered on any of the project parcels as a result of implementation of the project would be subject to review under Section 106 of NHPA. The

federal lead agency is required to identify historic properties within the APE, render determinations of eligibility and findings of effect, and consult with the State Historic Preservation Officer and the Advisory Council on Historic Preservation regarding agency determinations and findings. The criteria for determining eligibility for listing on NRHP are:

- The quality of significance in American history, architecture, archaeology, engineering, and culture as present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:
  - Are associated with events that have made significant contribution to the broad patterns of our history; or
  - Are associated with the lives of persons significant in our past; or
  - Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
  - Have yielded, or may be likely to yield, information important in prehistory or history.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) was approved on November 16, 1990, and provides for protection of Native American graves and all objects associated with ritual and burial. NAGPRA establishes conditions for the excavation and removal of Native American remains and artifacts, notification requirements for inadvertent discovery of Native American remains, and criminal penalties for illegal possession. NAGPRA directs federal agencies to identify the geographic and tribal origins of Native American remains and artifacts, and requires the repatriation of remains. NAGPRA would apply if there is a federal action related to the project.

Revisions were made to NAGPRA and made effective April 20, 2007. The revisions include procedures for the future applicability of NAGPRA to museums and federal agencies. The revisions provide museums and federal agencies with a uniform set of procedures to ensure that lineal descendants, Native American tribes, and Native Hawaiian organizations know of the existence and location of cultural items with which they are affiliated and which they may be able to repatriate.

State

California Register of Historic Resources

CRHR (Section 5024.1) is a listing of those properties that are to be protected from substantial adverse change. It includes properties that are listed, or have been formally determined to be eligible for listing in, NRHP, State Historical Landmarks, and eligible Points of Historical Interest. A historical resource may be listed in CRHR if it meets one or more of the following criteria:

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or cultural heritage of California or the United States;
- It embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master or possesses high artistic values; or
- It has yielded or has the potential to yield information important in the prehistory or history of the local area, California, or the nation.

Public Resources Code

Section 21084.1. Public Resources Code (PRC) Section 21084.1 stipulates that any resource listed in, or eligible for listing in, CRHR is presumed to be historically or culturally significant. Resources listed in a local historic register or deemed significant in a historical resources survey (as provided under PRC Section 5024.1g) are presumed historically or culturally significant unless the preponderance of evidence demonstrates they are not. A resource that is not listed in or determined to be eligible for listing in CRHR, not included in a local register or historic resources, or not deemed significant in a historical resource survey may nonetheless be historically significant. This provision is intended to give the lead agency discretion to determine that a resource of historic significance exists where none had been identified before and to apply the requirements of PRC Section 21084.1 to properties that have not previously been formally recognized as historic.

Section 21083.2. PRC Section 21083.2 stipulates that a project that may adversely affect a unique archaeological resource requires the lead agency to treat that effect as a significant environmental effect. When an archaeological resource is listed in or is eligible to be listed in CRHR, PRC Section 21084.1 requires that any substantial adverse effect to that resource be considered a significant environmental effect. PRC Sections 21083.2 and 21084.1 operate independently to ensure that potential effects on archaeological resources are considered as part of a project's environmental analysis. Either of these benchmarks may indicate that a project may have a potential adverse effect on archaeological resources.

3.6.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to cultural resources is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
B) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
C) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
D) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

A) Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Construction. One significant historical resource, as defined by CEQA Guidelines §15064.5, is known within the project area (USBOR 2009). The proposed distribution line alignments cross Enterprise Canal, a significant historical resource, at two locations. The Sunnyside South 21-kV Distribution Line would span Enterprise Canal, south of Shepherd Avenue, on wood poles. There is an existing overhead 12-kV distribution line located to the south of Enterprise Canal that is being reconductored by the proposed project. One wood pole would be added north of Enterprise Canal to span Enterprise Canal overhead. The new pole and the brief extension of the overhead distribution line would add an element to the viewshed. This addition would represent a minor visual change, as there is an existing distribution line to the south and there is a recently constructed road bridge crossing Enterprise Canal at this location. Construction of the Sunnyside South 21-kV Distribution Line would not have a substantial adverse change in the significance of a historical resource. The Shepherd Avenue West 21-kV Distribution Line would be bored underneath Enterprise Canal and would thereby avoid effects to the Canal. For construction of Shepherd Avenue West 21-kV Distribution Line beneath Enterprise Canal, standard BMPs and practices would be used to ensure that the drilling would not have an impact on the Canal and water delivery.

Construction has the potential to damage previously undiscovered historical resources through ground-disturbing activities. The applicant has proposed measures to reduce the impacts of ground-disturbing activities on cultural resources. APMs Cult-2 and Cult-3 would require a supplemental cultural resources survey and that construction be halted at the

discovery of prehistoric or historic resources, and would minimize potential impacts to historical resources. Additionally, APM Cult-1 has been superseded by mitigation measure Cultural-1, which requires specific topics regarding cultural resource preservation to be included in worker training. Implementation of mitigation measure Cultural-1 would reduce potential impacts to historical resources to a less-than-significant level.

APM Cult-2: If the applicant revises the location of proposed facilities and ground-disturbing activities that affect areas beyond those surveyed for the PEA, those areas will be subjected to a cultural resources inventory to ensure that any newly identified sites are avoided by ground-disturbing activities.

APM Cult-3: The applicant will minimize or avoid impacts to any potentially significant prehistoric and historic resources that might be discovered during construction by implementing standard protocols that include ceasing all work within 50 feet of the discovery, protecting the discovery from further impacts, and immediately contacting a PG&E Cultural Resources Specialist.

Mitigation Measure Cultural-1 (proposed to supersede APMs Cult-1 and Pal-1): A qualified Cultural Resources Specialist shall design and implement a Cultural Resources Awareness Program that shall be provided to all project personnel who may encounter unique archaeological properties, historical resources, or paleontological resources, including construction supervisors and field personnel. No construction worker shall be involved in field operations without having participated in the Cultural Resources Awareness Program. The Cultural Resources Awareness Program shall include, at a minimum:

- A review of archaeology, history, prehistory, and Native American cultures associated with historical resources in California.
- A review of photographs and figures of potential historical resources and unique archaeological properties in California.
- A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to cultural resource preservation.
- A discussion of procedures to be followed in the event that unanticipated paleontological or cultural resources are discovered during implementation of the project.
- A discussion of disciplinary and other actions that could be taken against persons violating historical preservation laws and PG&E policies.
- PG&E will require all contractors to comply with the Worker Environmental Awareness Program, PG&E policies, and other applicable laws and regulations as part of their contracts.
- Environmental training shall also be provided to workers regarding the protection of paleontological resources and procedures to be implemented in the event fossil remains are encountered during ground-disturbing activities.

The Cultural Resources Awareness Program may be conducted in concert with other environmental or safety awareness and education programs for the project. Cultural Resources Awareness Program training materials and/or presentations shall be submitted to CPUC for review and approval prior to the start of training sessions and at least 30 days prior to the start of construction.

Operation and Maintenance. Operation and maintenance activities would not require ground disturbance; therefore, no impacts to historical resources would occur.

B) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Construction. No significant archaeological resources are known to occur within the project area. Construction has the potential to damage previously undiscovered archaeological resources, as defined by CEQA Guidelines §15064.5, through ground-disturbing activities. APMs Cult-2 and Cult-3 minimize potential impacts to archaeological resources. Implementation of Mitigation Measure Cultural-1 would reduce potential impacts to archaeological resources to a less-than-significant level.

Operation and Maintenance. Operation and maintenance activities would not require ground disturbance; therefore, no impacts to archaeological resources would occur.

C) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Construction. The project area is located on a geologic unit with a high paleontological sensitivity rating. Construction has the potential to damage previously undiscovered paleontological resources. Specifically, the holes that would be augered for the power pole foundations (4-6 feet in diameter and 21-30 feet deep) could unearth paleontological resources. APM Cult-2 would reduce potential impacts to paleontological resources. APM Pal-1 has been superseded by Mitigation Measures Cultural-1 and Cultural-3, which require specific topics regarding cultural resource preservation to be included in worker training and a detailed protocol if paleontological resources are discovered. Implementation of Mitigation Measures Cultural-1, Cultural -2, and Cultural-3 would reduce impacts to a less-than-significant level.

Mitigation Measure Cultural-2: Prior to construction, a certified paleontologist shall be retained by PG&E to supervise construction excavations and to produce a Paleontological Resource Management Plan (PRMP) for the proposed project. The PRMP shall be prepared and implemented under the direction of the paleontologist, and shall be submitted to CPUC for review and approval at least 30 days prior to construction. Construction activities that require excavation or augering of 5 feet in diameter or greater at depths greater than 5 feet shall be monitored on a part-time or full-time basis by a paleontological construction monitor only in those parts of the project area where these activities will disturb previously undisturbed strata in the Riverbank Formation rock unit. Should monitoring reveal paleontological resources of interest during visual

inspection of the exposed rock unit, CPUC shall be immediately notified, and microscopic examination of matrix samples shall be conducted to determine if fossils are present.

Mitigation Measure Cultural-3 (proposed to supersede APM Pal-1): In the unlikely event that previously unidentified paleontological resources are uncovered during implementation of the project, CPUC shall be notified immediately and all ground-disturbing work shall be temporarily halted or diverted away from the discovery to another location. PG&E's paleontological resources specialist or his/her designated representative shall inspect the discovery and determine whether further investigation is required. If the discovery is significant, but can be avoided and no further impacts would occur, the resource shall be documented in the appropriate paleontological resource records and no further effort shall be required. If the resource is significant, but cannot be avoided and may be subject to further impact, PG&E shall evaluate the significance of the resources and implement data recovery excavation or other appropriate treatment measures, as approved by the landowner if on third-party property and as verified by CPUC.

These measures may include a report prepared in accordance with PG&E, Society of Vertebrate Paleontology guidelines, and CPUC requirements, and/or curation at a recognized museum repository.

Operation and Maintenance. Operation and maintenance activities would not require ground disturbance; therefore, no impacts to paleontological resources would occur.

D) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Construction. No cemeteries or burials are known to occur within the project area. Construction has the potential to damage previously undiscovered human remains through ground-disturbing activities. APM Cult-4 would reduce potential impacts to human remains by halting construction if suspected human remains are discovered. APM Cult-2 would also reduce impacts to human remains. Implementation of Mitigation Measure Cultural-1 would reduce potential impacts to a less-than-significant level.

APM Cult-4: If human remains are discovered, work in the immediate vicinity will stop immediately and a PG&E Cultural Resources Specialist will be contacted. The location of the discovery will be secured to prevent further impacts and the location will be kept confidential. The Cultural Resources Specialist will evaluate the discovery and will contact the Fresno County Coroner upon verifying that the remains are human. If the coroner determines the remains are Native American, the Native American Heritage Commission (NAHC) shall be contacted and the remains will be left in situ and protected until a decision is made on their final disposition.

Operation and Maintenance. Operation and maintenance activities would not require ground disturbance; therefore, no impacts to human remains would occur.

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3.7 GEOLOGY AND SOILS

3.7.1 ENVIRONMENTAL SETTING

Geology and Physiography

The proposed project site is located within the San Joaquin Valley, the southern subunit of the 430-mile-long and 75-mile-wide Central Valley. Topography in the project region is fairly flat with elevations ranging from approximately 380 to 385 feet above mean sea level (U.S. Geological Survey [USGS] 1964a). The western edge of the Sierra Nevada Range is located about 20 miles east of the proposed project site. Along the proposed alignment of the power line, elevations increase gently from about 385 to 395 feet above mean sea level, and elevations along the distribution line range from approximately 375 to 385 feet above mean sea level (USGS 1964a and 1964b).

The project area lies within a portion of the San Joaquin River watershed that is drained by Dry Creek. The San Joaquin River is located approximately 5 miles to the west of the proposed project site. Other water features present in the project area include the Enterprise Canal, seasonal wetlands, a regional flood retention/infiltration basin, and manmade freshwater ponds connected by a small irrigation ditch.

Geologic Setting and Units

Fresno County is located in the Great Valley Province, an extensive, northwest-trending, low-relief valley underlain by up to 80,000 feet of Jurassic and younger sediments. The Great Valley Province is bounded by the Coast Ranges Province to the west, the Sierra Nevada Province to the east and south, and the Cascade Range Province and Klamath Mountains Province to the north. The San Joaquin River and its tributaries drain the southern portion of the province.

The project site is located in a deep alluvial valley filled with a thick sequence of marine and non-marine sediments. Surficial geologic units in the project area consist of Quaternary alluvium and lake, playa, and terrace deposits (Jennings 2010). Figure 3.7-1 depicts the geologic units in the project area.

Soil Types and Hazards

Soil Types

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) has mapped soils in the project area (Figure 3.7-2). Atwater sandy loam underlies the majority of the proposed substation site, with Greenfield sandy loam underlying the northwest corner of the site. The power line is dominantly underlain by Atwater sandy loam and Cometa sandy loam (NRCS 2011). The predominant soil types within the distribution line alignments are Atwater sandy loam, Grangeville fine sandy loam, and Hanford sandy loam. The distribution line would span both the Riverwash and Tujunga sandy loam soil types located along Dry Creek. Soil characteristics are shown in Table 3.7-1.

Figure 3.7-1: Geologic Units in the Project Area

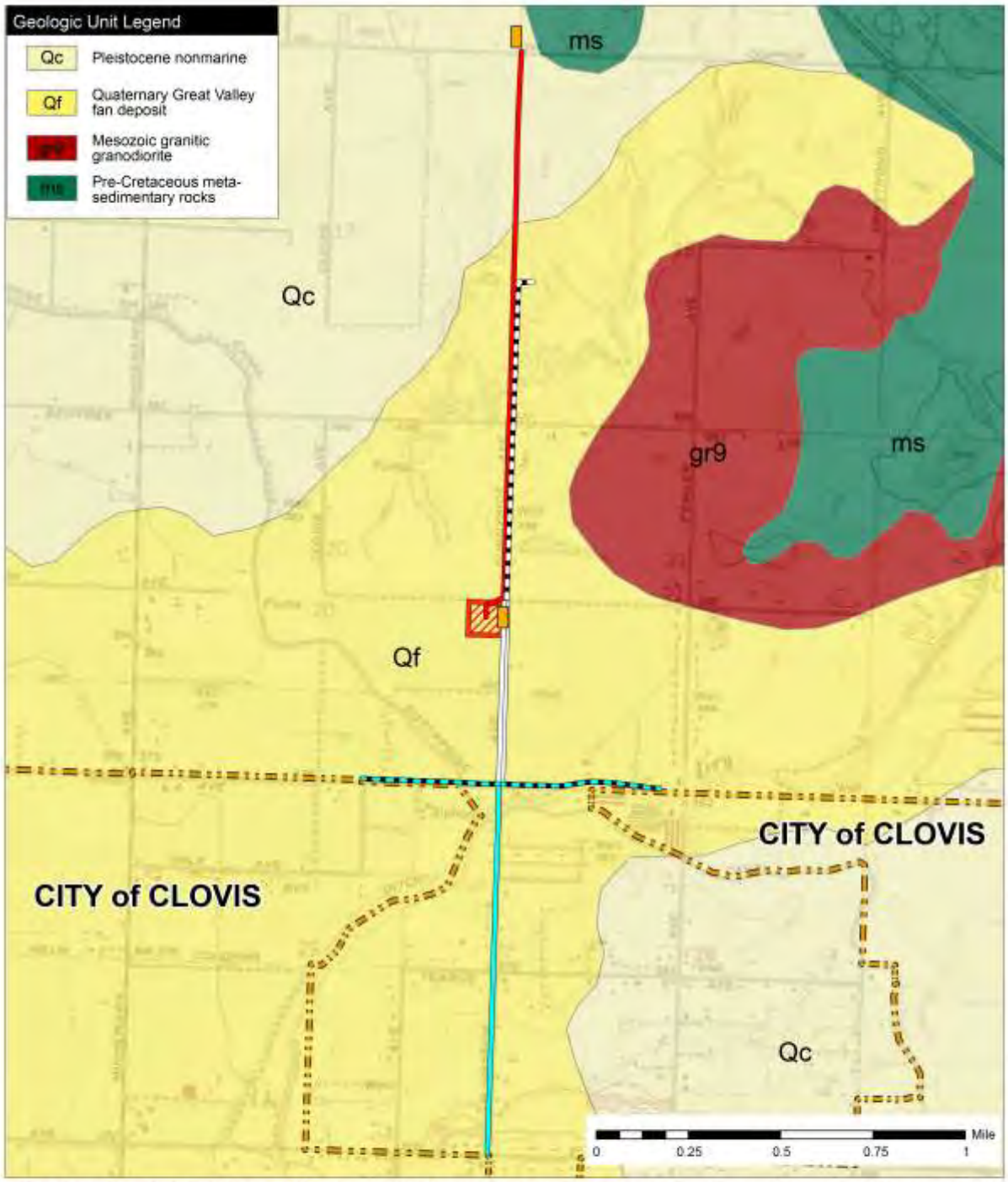

Figure 3.7-2: Soils in the Project Area

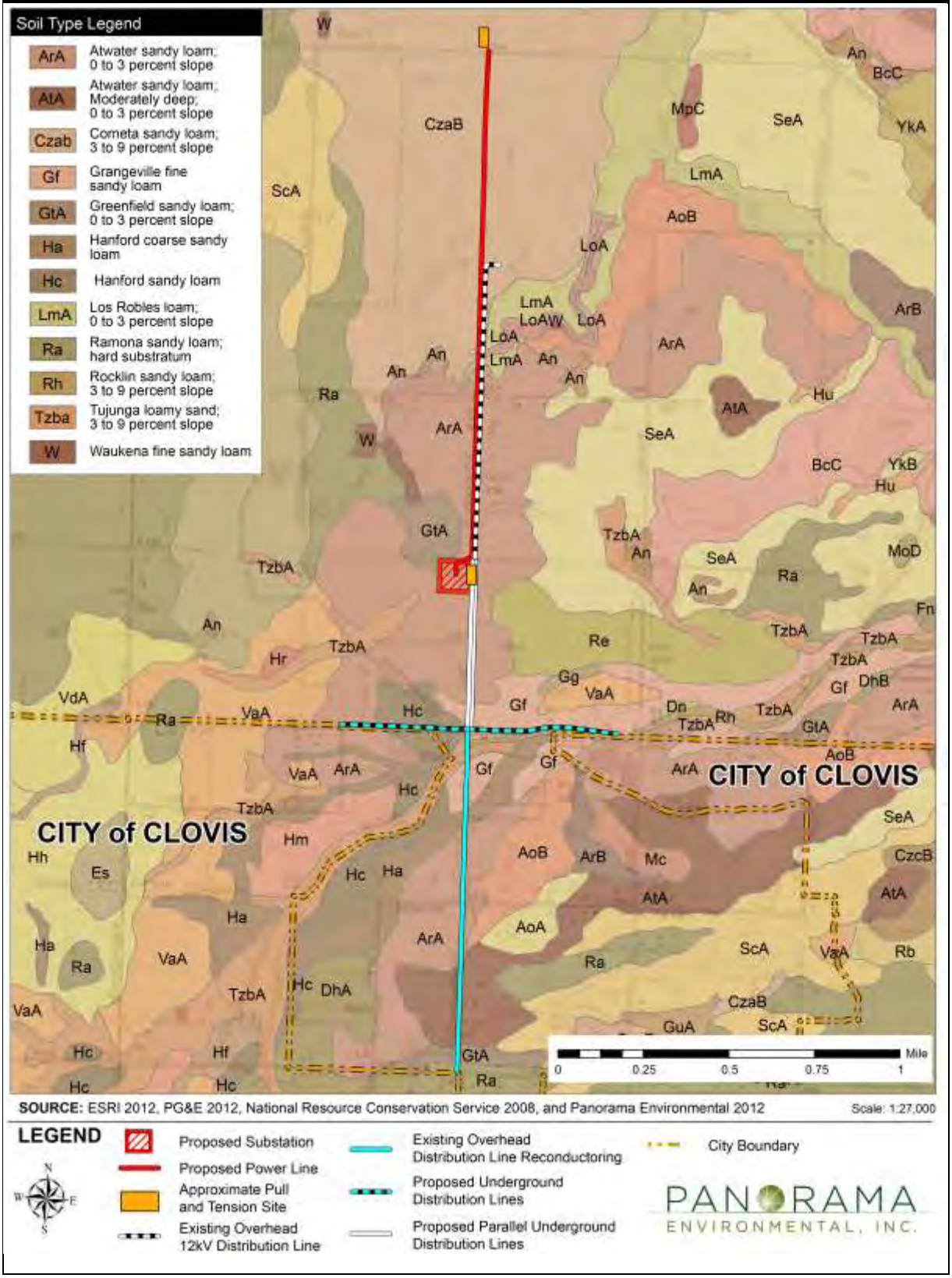

Table 3.7-1: Soils by Project Element

Project Element	Soil Type
Substation	Atwater sandy loam, Greenfield sandy loam
Power Line	Atwater sandy loam, Cometa sandy loam
Distribution Lines	Atwater sandy loam, Grangeville fine sandy loam, Hanford sandy loam, Riverwash sandy loam, Tujunga sandy loam

SOURCE: NRCS 2012

Subsurface exploration by Kleinfelder (2010) in August 2010 indicates that the proposed project site is underlain by alluvial soil consisting predominantly of medium-dense silty sand extending to depths of about 8 to 27.5 feet below ground surface (bgs), which is underlain by discontinuous layers of stiff sandy lean clay and medium-dense to dense clayey sand to the total depth explored of 31.5 or 51.5 feet bgs, depending on the boring location (refer to Appendix C). A summary of the properties of the three major soil types in the project area, as identified by NRCS (2012), is included in Table 3.7-2.

Table 3.7-2: Characteristics of Major Soil Units in the Project Area

Soil Series	Description	Slope	Runoff Rate	Shrink-Swell Potential	Erosion Potential
Atwater sandy loam (ArA)	Well-drained soils with moderately fine to moderately coarse texture	0 to 3 percent	Moderate	Low	Moderate
Cometa sandy loam (CzaB)	Moderately well-drained; includes clays with high shrink-swell potential, soils with high water table, soils with claypan at or near surface, and shallow soils over nearly impervious material	3 to 9 percent	High	Low to High	Moderate
Greenfield sandy loam (GtA)	Well-drained soils with moderately fine to moderately coarse texture	0 to 3 percent	Moderate	Low	Moderate
Grangeville fine sandy loam (Gf)	Somewhat poorly drained soils formed on alluvial fans and floodplains with fine sandy loam texture	0 to 2 percent	Moderate	Low	Moderate
Hanford sandy loam (Hc)	Well-drained soils formed on alluvial fans and floodplains with a sandy loam texture	0 to 2 percent	Moderate	Low	Moderate

SOURCE: NRCS 2012

Expansive and Collapsible Soils

Expansive soils contain significant amounts of clays that expand when wetted. Expansive soils can cause damage to foundations if moisture collects beneath structures. Surface soils in the project area primarily consist of sandy loams. The proposed substation site is underlain by soil with low shrink-swell potential. The power line alignment is underlain by soil with a range of shrink-swell potentials from low to high, based on the inclusion of clays with high shrink-swell potential within the Cometa sandy loam soils group. The aboveground distribution line is underlain by soils with low shrink-swell potential.

The expansive soils map provided in the *Fresno County General Plan Background Report* does not indicate any areas of expansive soils in the site vicinity (Figure 7-1 in Fresno County 2000a). The overall potential for encountering expansive soils at the project site generally is low.

The potential for mudflows at the proposed project site is unlikely because it is not located downslope from steep canyons in which a mudflow could originate; therefore, collapsible soil deposits are not anticipated to be present in the project area.

Erosion

Erosion is the process by which rocks, soil, and other land materials are abraded or worn away from the earth's surface over time. The erosion rate depends on many factors, including soil type, geologic parent material, slope, soil placement, vegetation, and human activity.

The erosion hazards map provided in the *Fresno County General Plan Background Report* does not indicate any areas of high erosion potential in the site vicinity (Figure 7-3 in Fresno County 2000a). The majority of the project site, including the power line and distribution line alignments, is dominated by surficial soil deposits consisting of sandy loams, which have a moderate erosion potential (NRCS 2011).

Subsidence

Subsidence is deep-seated settlement due to the withdrawal of fluid (oil, natural gas, or water). Subsidence can sometimes be measured in tens of feet and typically occurs in broad valleys underlain by thick sequences of alluvial sediments.

Some areas of the Central Valley have subsided more than 20 feet during the past 50 years. In some areas along the valley trough and in parts of western Fresno County, groundwater pumping has caused subsidence of the land surface (Fresno County 2000a). Groundwater levels beneath the Fresno area have been decreasing since at least about 1930 (City of Fresno 2011). If groundwater levels continue to drop within the Fresno area, subsidence is possible. Subsidence in the County has stabilized, except during droughts (Fresno County 2000a). The landslide hazard areas and areas of subsidence map provided in the *Fresno County General Plan Background Report* does not indicate any areas of subsidence in the site vicinity (Figure 9-6 in Fresno County 2000a).

Landslides

The California Geological Survey (CGS) has not mapped the landslide potential in Fresno County. The *Fresno County General Plan Background Report* includes a map of areas susceptible to erosion (Figure 9-6 in Fresno County 2000a). These areas include mountain and foothill areas with fractured or steep slopes (i.e., Sierra Nevada in eastern portion of County), areas where less consolidated or weathered soils overlie bedrock (i.e., Coast Ranges in western portion of County), and areas where inadequate ground cover results in accelerated erosion. Steep banks along rivers or creeks are susceptible to small slides and slumping. The proposed project site is not located in an area of moderate or high landslide potential. There is no risk of large landslides in the valley portion of the County because of its relatively flat topography (Fresno County 2000a).

Seismicity and Faults

The Alquist-Priolo Earthquake Fault Zoning Act (A-P Act) designates earthquake fault zones based on the presence of a sufficiently active and well-defined fault. CGS has developed criteria to classify fault activity for the A-P Act. By definition, an active fault is one that is "sufficiently active and well-defined," with evidence of surface displacement within Holocene time (about the last 11,000 years) (Hart and Bryant 2007). A potentially active fault displaces Quaternary deposits (last 1.6 million years). Potentially active faults also represent possible surface rupture hazards, although to a lesser degree. In contrast to active or potentially active faults, faults considered inactive have not moved in the last 1.6 million years.

There are a number of active and potentially active faults within and adjacent to Fresno County (Jennings and Bryant 2010); however, there are no known active faults or Alquist-Priolo earthquake fault zones within the project area. Major active fault zones designated by the A-P Act include the San Andreas Fault, located over 70 miles to the west, and the Nunez Fault, located approximately 60 miles to the southwest in the Alcalde Hills (Jennings and Bryant 2010) (Figure 3.7-3). The faults and fault systems along the eastern and western boundaries of the County, as well as other regional faults, have the potential to produce high-magnitude earthquakes throughout the County, including at the proposed project site and vicinity.

Most of the County, including the proposed project area, is located in Seismic Zone 3, as defined by the most recent California Uniform Building Code (Fresno County 2000b). The valley portion of the County is located on alluvium, which typically experiences stronger ground-shaking than areas located on hard rock (Fresno County 2000a). Ground-shaking is the primary seismic hazard within the project area and could result from an earthquake on any of the faults in the region; however, this risk is only moderate due to the project's distance from major fault lines. There is a 21 percent chance of a magnitude 6.7 or greater earthquake occurring along the northern branch of the San Andreas Fault within the 30-year period from 2009 to 2039 (2007 Working Group on California Earthquake Probabilities 2008).

Ground Motion

An earthquake along any of the fault zones shown on Figure 3.7-3 is capable of generating moderate ground motion or shaking at the proposed project site. Approximate ground motion parameters were estimated for the project alignment. The parameters presented in Table 3.7-3 represent a 10 percent probability of being exceeded during a 50-year period. They are expressed as a fraction of the acceleration due to gravity (g). Three ground motion values are shown: peak ground acceleration (PGA), short-period (0.2-second) spectral acceleration (Sa), and moderately long-period (1.0-second) Sa. PGA is a measure of earthquake acceleration experienced by a particle located on the ground. Sa is an approximation of the earthquake acceleration experienced by a building. Each ground motion value is shown for three site conditions: firm rock, soft rock, and alluvium. The proposed project is underlain primarily by alluvium (Jennings and Bryant 2010).

Liquefaction

Liquefaction is a seismic phenomenon in which water-saturated, cohesionless sediments, such as sand and silt, temporarily lose their strength and liquefy. Liquefaction occurs when saturated sediments are subjected to dynamic forces, such as intense and prolonged ground-shaking during an earthquake. Liquefaction typically occurs when groundwater is shallow (i.e., less than 30 feet bgs) and soils are predominantly granular and unconsolidated.

No specific County-wide assessment of liquefaction potential has been performed (Fresno County 2000b). However, soil types in the valley portion of the County generally are not conducive to liquefaction because they are either too coarse or too high in clay content (Fresno County 2000a). Groundwater in the Fresno area is estimated at approximately 120 to 130 feet bgs (City of Fresno 2011).

Lateral Spreading

Lateral spreading is a phenomenon that involves lateral displacement of large, intact blocks of soil down gentle slopes or toward a steep free face such as a stream bank. Lateral spreading occurs as a result of liquefaction of a shallow underlying deposit during an earthquake. It typically occurs on slopes of 0.3 to 5 percent underlain by loose sands and a shallow water table. Conditions conducive to lateral spreading include gentle surface slope, a shallow water table, and liquefiable cohesionless soil. These conditions commonly are found along streams banks, canals, or cut slopes in recent alluvial or deltaic deposits. Structures located at the head of the slide may be pulled apart and those at the toe of the slide may buckle or compress. The potential for lateral spreading in the project area is low.

Figure 3.7-3: Regional Faults

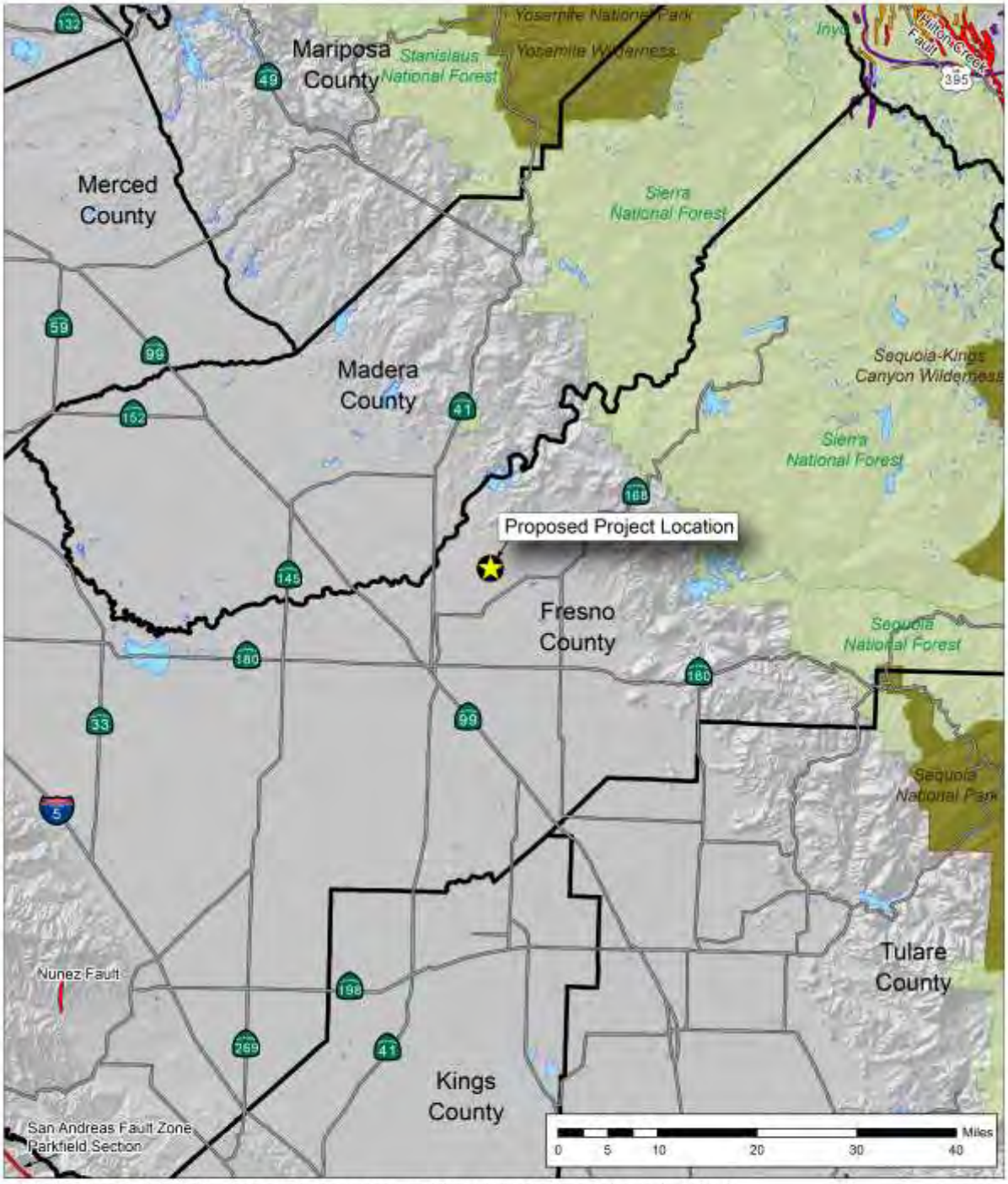

Table 3.7-3: Estimated Ground Motion Parameters at the Project Site

Ground Motion	Firm Rock (g)	Soft Rock (g)	Alluvium (g)
PGA	0.110	0.120	0.160
Sa (0.2-second)	0.254	0.277	0.369
Sa (1.0-second)	0.127	0.160	0.226

SOURCE: CGS 2008

3.7.2 REGULATORY SETTING

State

Seismic Hazard Mapping Act

The State of California passed the Seismic Hazard Mapping Act in 1990, following the 1989 Loma-Prieta earthquake. The Act was passed to reduce the potential impacts on public health and safety and to minimize property damage caused by earthquakes. The Act established a requirement for the identification and mapping of areas prone to the earthquake hazards of liquefaction, earthquake-induced landslides, and amplified ground-shaking. The Act requires site-specific geotechnical investigations to identify potential seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy within the Zones of Required Investigation.

The Alquist-Priolo Special Studies Zones Act

The A-P Act was passed in 1972 to mitigate the hazard of surface faulting to structures intended for human occupancy. The Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Act requires the State Geologist to delineate earthquake fault zones along active faults within the state and to issue appropriate maps. Setbacks from the fault and special studies are required within the specified zones. For the purpose of the Act, an active fault is one that has moved in the last 11,000 years (Hart and Bryant 2007).

California Building Code

The 2007 California Building Code (CBC) is based on the 2006 International Building Code with the addition of more extensive structural seismic provisions. The CBC was adopted by the California Building Standards Commission and became effective January 1, 2008. The CBC is contained in the Title 24 of the California Code of Regulations, California Building Standards Code, and is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes.
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions.

- Building standards authorized by the California legislature that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.

Seismic sources and the procedures used to calculate seismic forces on structures are defined in Section 1613 of the CBC. The code requires that all structures and permanently attached nonstructural components be designed and built to resist the effects of earthquakes. The code also includes grading and other geotechnical issues, building specifications, and non-building structures. The proposed project would include these types of improvements and, therefore, the building code would be applicable.

The State Fire Marshal has authority to implement and enforce the provisions of the pipeline safety standards codified in Sections 51010 to 51019 of the California Code of Regulations. These regulations require pipeline inspection and assessment for improvements, replacement, or construction of pipelines. The regulations additionally require that pipelines be designed and constructed in accordance with federal standards. The design of new pipelines shall accommodate the passage of instrumented internal inspection devices. Leak mitigation systems and emergency response plans are also required.

3.7.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to geology and soils is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground-shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
B) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
C) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
D) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), or collapsible soil, creating substantial risks to life or property?	☐	☐	☒	☐
E) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

A) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map?

The proposed project site is not underlain by any active or potentially active faults. The nearest active faults and designated Alquist-Priolo Fault Hazard Zones are the Nunez Fault, located approximately 60 miles southwest of the project site, and a segment of the San Andreas Fault Zone, located approximately 70 miles west of the project site. The risk of fault rupture is greatest in the immediate vicinity of active faults. No recognized active faults underlie the project site; therefore, no impacts from fault rupture would occur.

(ii) Strong seismic ground-shaking?

Construction. Although the proposed project is located in an area far from active and potentially active faults, a strong seismic event on one of these faults could result in an earthquake and ground-shaking within the project area. Severe ground-shaking has the potential to cause human injury; however, due to the short duration of construction (12 months) and the low probability of a seismic event occurring during this time, the potential

for construction crews to experience strong seismic ground-shaking is minimal. Impacts would be less than significant.

Operation and Maintenance. During project operation, the substation would be unmanned and controlled remotely. Routine inspections by substation personnel would occur monthly or as needed under emergency conditions. The power and distribution line would be inspected annually, minimizing the amount of foot and vehicle traffic on site. A more comprehensive inspection would occur every 3 to 5 years. Project infrastructure would be designed and installed in accordance with seismic design parameters included in the most recent edition of the California Building Code. Impacts to power or distribution lines resulting from ground-shaking would be unlikely. The aboveground power and distribution lines would be constructed with sufficient conductor length, sag, and span between conductors per industry standards. Impacts would be less than significant.

(iii) Seismic-related ground failure, including liquefaction?

Construction. Liquefaction is generally a concern when the groundwater table is within 30 to 50 feet of the surface, the soils are unconsolidated and granular, and ground acceleration and earthquake duration are of sufficient energy to induce liquefaction. Based on several site-specific factors, an earthquake equivalent in magnitude to the design-level earthquake for the project site would not result in liquefaction (Kleinfelder 2010). Due to the short duration of construction (12 months) and the low probability of a seismic event occurring during this time, the potential for construction crews to be exposed to seismic-induced liquefaction is minimal. Impacts would be less than significant.

Operation and Maintenance. Liquefaction hazards to the substation and power line interconnection would be addressed through appropriate standards for excavation, grading, and compaction during construction. Impacts to project structures and maintenance personnel resulting from seismic-induced liquefaction would be unlikely. Impacts would be less than significant.

(iv) Landslides?

Landslides pose risks in steep terrain with unstable subsurface conditions. Landslides are not likely at the proposed project site because of the gently sloping (0 to 5 percent) topography and distance from hills, mountains, and slopes. Additionally, site preparation would involve minimal grading to establish a level pad for the substation and adjacent work areas, as well as limited excavation to construct the stormwater detention basin and the SPCC concrete basin. No impacts from landslides would occur.

B) Would the project result in substantial soil erosion or the loss of topsoil?

Construction. Soil erosion or loss of topsoil could result from excavation or grading activities during construction. A stormwater detention basin would be constructed within the substation and would be engineered to acceptable industry standards, as well to Fresno County basin capacity criteria and design standards. BMPs developed by PG&E for

substation construction would also be followed. The project area is flat, and although minor grading and limited excavation would be required, there would be no significant changes to the topography. Construction of the substation, power line, and distribution lines would disturb soils, which may be subject to erosion during construction activities. However, the site is flat and native soils generally are moderately well-drained or well-drained.

Surface disturbance would be minimized to the extent practicable to complete the scope of work safely and efficiently. Erosion control BMPs would be used where grading is performed. Topsoil would be salvaged from areas where grading would otherwise result in loss of topsoil, and the salvaged soil would be used to reclaim areas of temporary construction disturbance, in accordance with the recommendations provided by Kleinfelder (Appendix C). Once temporary surface disturbance is complete, areas that would not be subject to additional disturbance would be stabilized with appropriate erosion control measures including revegetation or other permanent BMPs. PG&E's Grading Standards would be implemented to minimize impacts to the project area, and Fresno County's Grading Ordinance would be adhered to during construction. Additionally, recommendations provided in the geotechnical report prepared for the proposed project site (Appendix C) regarding site preparation, drainage and moisture control, and erosion and runoff minimization would be implemented as appropriate.

The applicant has proposed APMs Geo-1/WQ-1 and WQ-3 to reduce impacts from erosion and siltation. APM Geo-1 requires implementation of an Erosion and Sediment Control Plan (ESCP) and SWPPP, and APM WQ-3 requires construction of a permanent stormwater basin. Implementation of Mitigation Measure Air-1 would require permanent BMPs for soil stabilization.

APM Geo-1/WQ-1: Erosion and Sediment Control Plan (ESCP) implementation. An ESCP will be prepared in association with the Stormwater Pollution Prevention Plan (SWPPP). This plan will be prepared in accordance with the Water Board guidelines and other applicable Best Management Practices (BMPs). Implementation of the plan will help stabilize disturbed areas and waterways and will reduce erosion and sedimentation. The plan will designate BMPs that will be followed during construction activities. Erosion-minimizing efforts may include, but are not limited to, measures such as:

1. Avoiding excessive disturbance of steep slopes.
2. Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas.
3. Strictly controlling vehicular traffic.
4. Implementing a dust-control program during construction.
5. Restricting access to sensitive areas.
6. Using vehicle mats in wet areas.
7. Revegetating disturbed areas, where applicable, following construction. In areas where soils are to be temporarily stockpiled, soils will be placed in a controlled area and will be managed with similar erosion control techniques. Where construction activities occur near a surface water body

or drainage channel and drainage from these areas flows towards a water body or wetland, stockpiles will be placed at least 100 feet from the water body or will be properly contained (such as berming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures will be used to protect exposed areas during and after construction activities. Erosion-control measures will be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, will remain in place until disturbed areas have stabilized.

8. The SWPPP will be designed specifically for the hydrologic setting of the project. BMPs documented in the ESCP may also be included in the SWPPP.

Operation and Maintenance. Project operation and maintenance would not involve activities that would increase the risk of erosion or removal of topsoil at the site. Runoff rates could increase slightly due to the construction of semi-pervious and impervious surfaces at the substation, and erosion could potentially increase as a result. Stormwater runoff from the impervious portion of the proposed substation would be directed to a stormwater detention basin, in which on-site stormwater would be cleaned of potential pollutants and infiltrated into the local groundwater table, as specified in APM WQ-3. The proposed project also includes AMM 10, which requires revegetating areas of greater than 0.25 acre disturbed during construction and O&M and would reduce erosion and runoff following project start-up. Implementation of the APMs described above and Mitigation Measure Air-1 would ensure impacts from soil erosion and loss of topsoil are reduced to a less-than-significant level.

C) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Construction. The project is not located on unstable soils, is generally flat, and will involve limited surface disturbance during construction. There is no evidence of widespread subsidence in the project area. Between 0.5 and 0.75 inch of foundation settlement is estimated to possibly occur as a result of project construction, with the majority occurring during placement of load. Settlement of all foundations is expected to occur rapidly and should be complete shortly after initial application of the loads; therefore, this minimal amount of settlement would not impact site equipment or the environment. The potential for liquefaction, lateral spreading, and soil collapse in the project area is low. There is no risk of large landslides in the valley portion of the County, in which the proposed project site is located, because of its relatively flat topography. Impacts from soil instability would be less than significant.

Operation and Maintenance. During project operation, the substation would be unmanned and controlled remotely. Routine inspections by substation personnel would occur monthly

or as needed under emergency conditions. Substation equipment and the power line interconnection would be inspected annually, minimizing the amount of foot and vehicle traffic on site. A more comprehensive inspection would occur every 3 to 5 years. Impacts to project structures and maintenance personnel resulting from soil instability would be unlikely. Impacts would be less than significant.

D) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), or collapsible soil, creating substantial risks to life or property?

Soils at the project site dominantly consist of sandy loam. The soils contain low amounts of clay and are not expected to be expansive; therefore, the risk of encountering expansive soils at the project site is low. There are no limitations on construction of structures imposed by the shrink-swell potential of the soils at the proposed project site. The substation site would be graded and approximately 8,500 cubic yards of clean engineered fill would be required to bring the substation site to final grade. All fill placed on site would be placed and compacted in accordance with standard construction practices (e.g., compact to either 90 or 95 percent of maximum dry density, place fill in 6- to 8-inch lifts, and remove all organic material and other debris from all engineered fill). Standard construction practices would be used to mitigate hazardous soil conditions, if encountered. Impacts from expansive or collapsible soils would be less than significant.

E) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No septic tanks or alternative wastewater disposal systems (e.g., leach fields) would be constructed as part of the project. No impacts would occur.

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3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 ENVIRONMENTAL SETTING

Land Uses in the Project Area

The project area is located in a rural area of Fresno County. The proposed substation property is currently being used as an orchard. Surrounding land uses within 1 mile of the power line and distribution lines consist primarily of rural residential housing, orchards, and open space. There are no landfills, transfer stations, or wastewater treatment plants located within 2 miles of the project location. There are no manufacturing or chemical plants within the project area. There are no schools, hospitals, or elderly care facilities within 0.5 mile of the project location. There are no airports within 4 miles of the project location. The nearest airport is the Arnold Ranch Airport, which is a private airstrip located 4 miles northwest of the project area.

Hazardous Material Sites

The majority of contaminated sites in the Fresno and Clovis areas are the result of leaking underground storage tanks (LUSTs) that once stored fuel (Fresno County 2000). Four clean-up sites were identified within 3 miles of the project location. All four of these LUST sites are closed, have been cleaned up, and are no longer active (SWRCB 2012). The California State Water Resources Control Board (SWRCB) is currently investigating one site at P&R Farms, located 1 mile west of the project site on Minnewawa Avenue. Soil contamination at the site resulted from the release of pesticides and herbicides from a LUST in 1965.

Agricultural, commercial, and industrial land uses can lead to contamination issues that may persist as rural areas urbanize. The use and storage of chemicals for farming operations are regulated, monitored, and enforced by the Fresno County Department of Agriculture, Weights and Measures, under the California Department of Food and Agriculture Pesticide Regulation Program. Vector control provides mosquito abatement services, and may use insecticides to control pests within the project area.

Fire Hazards and Emergency Response

The project area is not within an area of high wildfire potential that could threaten significant built assets (California Department of Forestry and Fire Protection [CalFire] 2010; Clovis 1993). However, rural areas can be prone to fires due to the presence of dry fields and flammable sheds, roofs, and fences.

Collector and local roads in the project area can be used as emergency access routes during an emergency. Emergency response is available from the Mid Valley Fire Protection District. The District has 24-hour service and an instant aid agreement with the City of Clovis (Clovis 1993). In addition, the City plans to construct a fire station within the vicinity of the proposed project, south of Behymer Road and west of Sunnyvale Avenue (Minnewawa-International Clovis Neighbors 2010). The City and the County coordinate emergency response activities through their respective offices of emergency management.

3.8.2 REGULATORY SETTING

Federal

Environmental Protection Agency

Hazardous materials and waste are regulated at the federal level by the EPA through numerous laws. The following are federal laws and regulations pertaining to the management of hazardous materials:

- Resource Conservation and Recovery Act (40 CFR Parts 240-299).
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- National Oil and Hazardous Substances Pollution Contingency Plan.
- Clean Water Act.
- Spill Prevention, Control, and Countermeasures Plan (40 CFR Part 112).
- Superfund Amendments and Reauthorization Act.
- Occupational Safety and Health Standards (Title 29 CFR Parts 1910 and 1926).

Federal Aviation Administration

The Federal Aviation Administration (FAA) regulates aviation at regional, public, private, and military airports. Regulation 49 CFR Part 77.13 stipulates the height of structures near airports. The U.S. and California Departments of Transportation also require the project proponent to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration when:

- Construction or alteration exceeds 200 feet above ground level.
- Construction or alteration is:
  - Within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet.
  - Within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet.
  - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface.
- Requested by the FAA.
- Construction or alteration is located on a public use airport or heliport regardless of height or location.

State

The California Environmental Protection Agency (Cal/EPA) and the Department of Toxic Substances Control (DTSC) manage hazardous materials and waste within the State of California. The DTSC regulates hazardous waste, cleans existing contamination, and looks for ways to reduce hazardous waste produced in California.

Hazardous Waste and Control Law

The Hazardous Waste and Control Law (HCLW) is administered by Cal/EPA. The HCLW lists materials that may be hazardous and identifies criteria for proper handling and control of hazardous materials.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary state overseer of worker safety.

California Water Code

The California Water Code (CWC) includes provisions of the federal CWA and other water quality programs specific to California. The CWC requires reporting, investigation, and cleanup of hazardous material releases that could affect waters of the state, including storm water.

3.8.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to hazards and hazardous materials is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
B) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
C) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
D) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?	☐	☐	☐	☒
E) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
F) For a project located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
G) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
H) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

A) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction. The use of hazardous materials during project construction would be minimal. Hazardous materials associated with construction may include gasoline, diesel fuel, hydraulic oils, equipment coolants, and generated wastes that may include these materials. These materials are considered hazardous because they are flammable and/or contain toxic compounds, such as volatile organic compounds and heavy metals. Waste considered hazardous by the State of California would be transported and disposed of according to applicable federal, state, and local regulations. Fueling and routine maintenance of equipment and vehicles would be performed off-site to the greatest extent feasible.

The applicant has proposed APM Haz-1 to reduce the impact associated with accidental spills of hazardous and other materials during construction. The project would disturb more than 1 acre of land; therefore, a stormwater pollution prevention plan (SWPPP) would be prepared and implemented for project construction, as required by the Construction General Permit Order 2009-009-DWQ. The SWPPP would contain BMPs to address material handling and hazardous material management, as required by the Construction General Permit.

APM Haz-1: Emergency spill response and cleanup kits will be available on site and readily available for the cleanup of any accidental spill. Construction crews will be trained in safe handling and cleanup responsibilities prior to the initiation of construction.

Use of hazardous materials has the potential to affect waterways and wetlands in the project area. Discharge of these materials could cause a significant effect to the water quality. Mitigation Measure Hazards-1 and Mitigation Measure Hazards-2 would reduce the potential for significant effects during construction. Through the implementation of these mitigation measures and APM Haz-1, the project would pose a less than significant hazard to the public through the routine use, disposal, or transport of hazardous materials.

Mitigation Measure Hazards-1: PG&E will submit a Site Safety Plan to the CPUC at least 30 days prior to project construction. The plan will identify ways to minimize the exposure of the public to potentially hazardous materials during all phases of project construction through operation and maintenance. The plan will require appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. All hazardous materials and hazardous wastes will be handled, stored, and disposed of by personnel qualified to handle hazardous materials and in accordance with all applicable regulations. If it is necessary to store any chemicals on-site, they will be managed in accordance with all applicable regulations. Materials Safety Data Sheets will be maintained and kept available on-site, as applicable.

Mitigation Measure Hazards-2: An Environmental Training and Monitoring Program (ETMP) shall be established to communicate any environmental concerns to all field personnel, in addition to appropriate work practices, including:

- Spill prevention and response measures (including BMPs),
- Site-specific physical conditions to improve hazard prevention (e.g., identification of flow paths to nearest water bodies),
- Review of all site-specific plans, including, but not limited to, the project's SWPPP and Site Safety Plan.

A copy of the ETMP shall be submitted to the CPUC at least 30 days prior to construction. Training records shall be kept on site and submitted to the CPUC upon request. A PG&E representative shall be designated to ensure that the plans are followed throughout the construction period.

BMPs identified in the project SWPPP shall be implemented during project construction to minimize the risk of an accidental release of hazardous materials and to provide the necessary information for emergency response.

Operation and Maintenance. The substation would include three 45 MVA transformers. Each transformer would contain approximately 6,000 gallons of mineral oil for cooling. The mineral oil would not contain polychlorinated biphenyls and would be nontoxic; however, when transformers are taken out of service, the mineral oil must be disposed of as hazardous waste. Other potentially hazardous materials associated with the substation and its routine maintenance includes batteries for back-up power and petroleum hydrocarbon products associated with maintenance vehicles. Should a spill of these substances occur, they would be contained within the SPCC basin that would be constructed at the proposed substation site. The applicant has proposed APM Haz-2 to address the potential for hazardous material spills. In addition, Mitigation Measures Hazards-1 and Mitigation Measure Hazards-2 would be implemented to reduce the potential impacts from the project to a less than significant level.

APM Haz-2: In the event of an accidental spill, the substation is equipped with a retention basin that meets SPCC Guidelines (40 CFR 112). The SPCC basin will be sufficiently sized to accommodate the accidental spill of all mineral oil from the largest transformer located at the substation. The substation will also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Containment will be constructed around and under the battery racks with neutralizing pads.

B) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Reasonably foreseeable upset and accident conditions that could involve the release of hazardous materials would include the spill of petroleum hydrocarbons or other hazardous fluids associated with vehicle and equipment operation during construction and maintenance of the proposed project, and spills of mineral oil or battery acid associated with the substation. The proposed project would include implementation of APM Haz-1, which includes provisions for the availability of emergency spill response and clean-up kits that would be readily available for the clean-up of any accidental spill and APM Haz-2, which includes specifications for a retention basin that meets SPCC guidelines. The applicant would also be required to implement Mitigation Measures Hazards-1 and Hazards-2, which specify development of an SPCC Plan and an Environmental Training and Monitoring Plan. Through implementation of APMs Haz-1 and Haz-2, along with Mitigation Measures Hazards-1 and Hazards-2, the proposed project would have a less than significant impact.

C) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

There are no schools within 0.25 mile of the project site; therefore, there would be no impact.

D) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?

Construction. A review of information obtained from the SWRCB (Geotracker) database (SWRCB 2012) indicates the project area is not located on a known hazardous material site pursuant to Government Code Section 65962.5. Four LUST clean-up sites were identified within 3 miles of the project location. These LUST sites are closed, have been cleaned up, and are no longer active (SWRCB 2012). The closest clean-up site is at P&R Farms, located 1 mile west of the project site. The site is currently active and undergoing site investigation. The proposed substation and transmission and distribution lines are not located within the P&R Farms clean-up site nor directly adjacent to the clean-up site. As a result, there would be no impact as a result of the proposed project and any hazardous materials sites.

Operation and Maintenance. The project site is not located on a list of hazardous materials sites. There would be no significant hazard to the public sites as a result of operation or maintenance of the proposed project.

E) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

There are no airports located within 2 miles of the project area; therefore, the proposed project would have no impact.

F) For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The nearest private airstrip, the Arnold Ranch Airport, is located more than 4 miles northwest of the nearest point of the project area (Airnav 2009). The proposed project would have no impact.

G) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction. Construction of the power line may require brief periods during which traffic would need to be controlled along E. Copper Avenue. Construction of the distribution lines along Sunnyside Avenue and Shepherd Avenue would require periods where traffic would need to be controlled, and lane closures may be required to route traffic around work areas. Refer to Section 3.16, Traffic and Transportation, for further detail regarding traffic impacts. Lane closures could cause a significant effect if they impeded emergency vehicles. Mitigation

Measure Hazards-3 would be implemented during construction to reduce the impacts of construction on an emergency response or evacuation plan to a less than significant level.

> **Mitigation Measure Hazards-3:** PG&E will coordinate with local emergency personnel in the event that project activities may impact an access point or route during an emergency. PG&E will notify local law enforcement and fire protection services before beginning construction activities that require road closures so that the project will not result in inadequate emergency access.

Operation and Maintenance. Operation activities would not interfere with adopted emergency response plans or emergency evacuation plans. If lane closures are required during maintenance, there could be a significant effect on emergency vehicle access. Mitigation Measure Hazards-3 would be implemented to avoid significant effects to emergency response or evacuation plans as a result of the proposed project.

> ***H) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?***

Construction. The project site is not located in a wildland area or in an area with a high fire potential. However, equipment used during construction could create sparks and ignite a fire. Other potential fire hazards include worker behavior such as smoking and disposing of cigarettes or parking vehicles on dry vegetation. In areas where there is potential for the spread of a wildfire during construction activities (e.g., the substation site and where the transmission line traverses undeveloped lands), APM Haz-3 and Mitigation Measure Hazards-4 would be implemented to reduce the potential for wildfires to a less than significant level.

> **APM Haz-3:** A water truck will be available on site during dry conditions, as assessed by the construction foreman, to prevent the ignition or spread of a wildfire. The work site will be sprayed a minimum of three times per day during dry conditions.
>
> **Mitigation Measure Hazards-4:** Smoking will not be permitted during fire season, except in a barren area that is paved or cleared to bare soil at least 10 feet in diameter, or within vehicles and enclosed equipment cabs. Under no circumstances will smoking be permitted during fire season while employees are operating light or heavy equipment, or while walking or working in grasslands.

Operation and Maintenance. Operation and maintenance of the proposed substation would not expose people or structures to wildland fires. Vegetation within the substation property would be removed, and the remaining almond trees would be watered and maintained by PG&E. The site would be monitored remotely from PG&E's Fresno Control Center, and in the case of fire, notice would be sent to the Control Center. The risk to people or structures from wildland fires as a result of operation of the power line and distribution lines would be the same as under existing conditions. There would therefore be a less than significant impact as a result of operation of the proposed project.

During maintenance of the substation, power line, and distribution lines, potential fire hazards include worker behavior such as smoking and disposing of cigarettes. Maintenance personnel would be required to adhere to Mitigation Measure Hazards-4, which restricts smoking. Mitigation Measure Hazards-4 would ensure that impacts from maintenance of the proposed project would be less than significant.

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3.9 HYDROLOGY AND WATER QUALITY

3.9.1 ENVIRONMENTAL SETTING

Regional Setting

The project site is located in Fresno County, in the San Joaquin Valley, the southern subunit of the Central Valley of California. The major waterways in the project area are the Kings River, located approximately 15 miles southeast, and the San Joaquin River, located approximately 5 miles west of the proposed substation site. Both rivers drain the Sierra Nevada Mountains located to the east. The San Joaquin River flows southwest from the Sierra Nevada mountain range and crosses the San Joaquin Valley. The overall direction of drainage in the project region is from northeast to southwest.

Topography within the San Joaquin Valley is fairly flat. The western edge of the Sierra Nevada foothills are located about 20 miles east of the proposed project site. Elevations within the project area range from approximately 380 to 395 feet above mean sea level (USGS 1964a). Elevations increase gently from about 385 to 395 feet above mean sea level along the proposed alignment of the power line extending northward from the proposed substation site to Copper Avenue (USGS 1964a, 1964b).

Aquifers east of the valley trough, where the project site is located, are generally semi-confined or unconfined, and are characterized by good water quality (Fresno County 2000).

Precipitation

Low elevations of Fresno County, such as at the project site, are characterized by warm, dry summers and temperate winters with fairly light precipitation. Most precipitation falls between November and April. The average annual precipitation within the County is approximately 10 to 11 inches (Fresno County 2011).

Surface Water Bodies

Drainages, Creeks, and Streams

The project area lies within the San Joaquin River watershed. Hydrologic features in and near the project area are identified on Figures 3.5-2 through 3.5-7. Two field delineations of waters including wetlands were conducted for the proposed project on March 18, 2011, and August 3, 2011 (Transcon 2011a; 2011b). Water features identified within the project area include:

- Dry Creek
- Enterprise Canal
- Manmade freshwater ponds
- Regional retention/infiltration basin
- Ephemeral drainages

Dry Creek. A portion of Dry Creek is present along Sunnyside Avenue directly north of Enterprise Canal. This creek is periodically fed by the Dry Creek reservoir located approximately 1.5 miles northeast of the project area. The creek is usually dry for the majority of the year. Dry Creek is one of the many area streams that have been controlled by the USACE and the Fresno Metropolitan Flood Control District in an effort to protect downstream developed areas from flooding (Fresno County 2000).

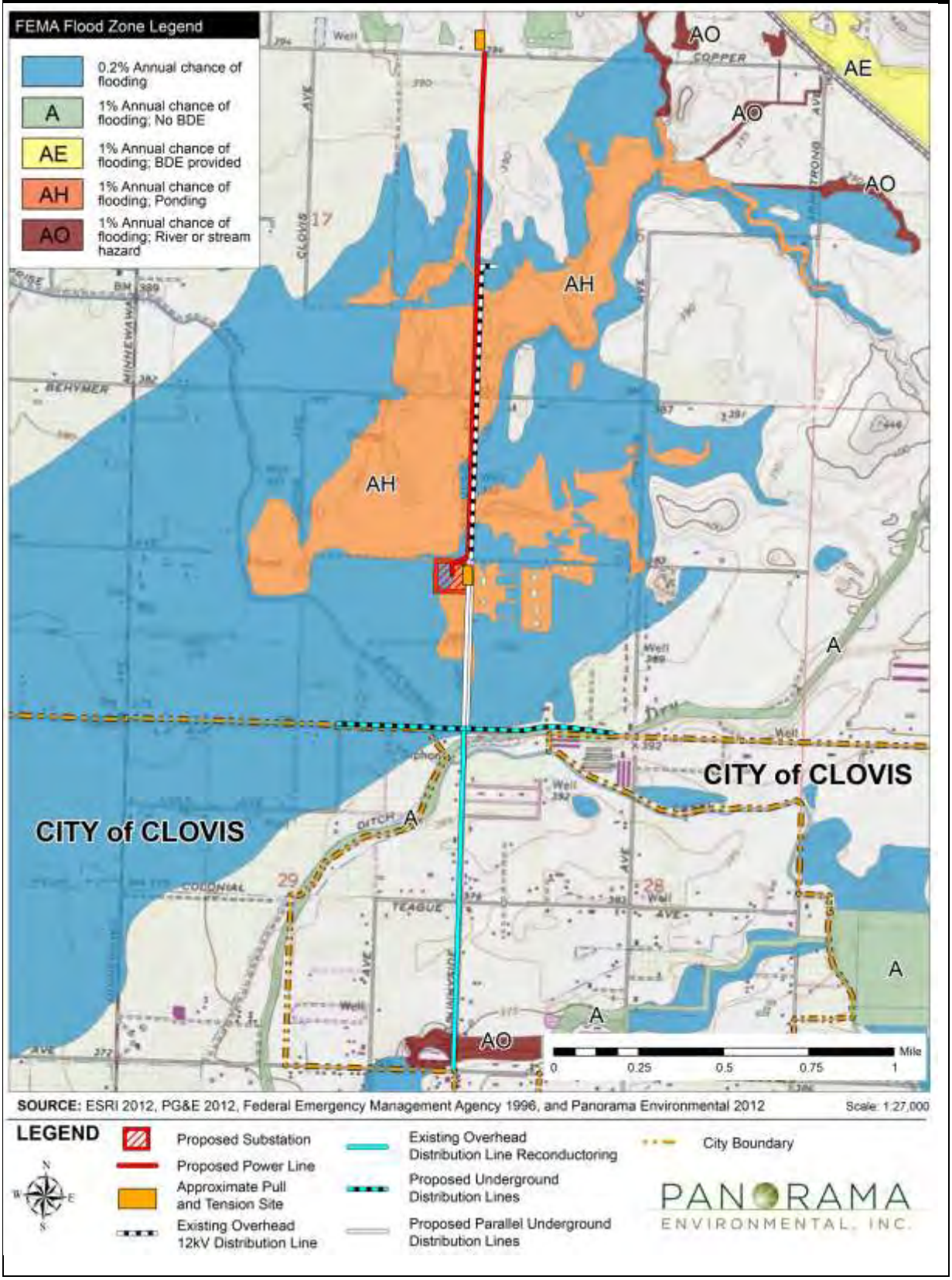
Enterprise Canal. Enterprise Canal is a 28-mile-long irrigation canal maintained by Fresno Irrigation District (Figure 3.5-5). The canal delivers surface water to the City of Fresno's water treatment plants, irrigation water to local farmers, and is also used for the disposal of storm water. The distribution lines cross the canal in two locations; west of the intersection of Shepherd Avenue and Sunnyside Avenue, and south of this same intersection.

Man-Made Freshwater Ponds. Two manmade ponds were identified within the transmission line and distribution line alignments. One freshwater pond is located at the northern end of the power line behind a newly constructed single-family home immediately south of E. Copper Avenue. The pond was recently built along with a new home after an almond orchard was cleared (Transcon 2011a). The man-made freshwater pond is approximately 0.12 acres. The second manmade pond appears to be fed by Fresno Irrigation District water via an irrigation canal and provides water for residential irrigation. The pond may also provide a recharge source to the groundwater aquifer. The second manmade pond is 0.006 acres.

Regional Retention/Infiltration Basin. A large retention/infiltration basin is present within the proposed power line alignment. This basin is maintained by the Fresno Metropolitan Flood Control District as part of their flood control program and does not contain water for a majority of the year. The basin has been designed to manage flooding for the surrounding area.

Ephemeral Drainage Features. Three drainage features are present within the power line alignment study area (Figures 3.5-3, 3.5-4, 3.5-6, 3.5-7). The northern most drainage feature is a canal flowing east from the man-made, freshwater pond. A second drainage feature, a roadside ditch, runs north/south between an agricultural access road and a driveway just north of Behymer Avenue. The third drainage feature conveys water to the Flood Control District detention basin just north of Perrin Avenue. The ephemeral drainage features are approximately 0.01, 0.05, and 0.03 acres, respectively. One ephemeral drainage feature is present within the distribution line alignment and buffer zone. This drainage appears to divert surface water away from roads and residential property, but does not appear to connect to any other water features. This drainage and is approximately 0.003 acres. Due to lack of hydrologic connectivity with a traditionally navigable water, these drainage features are likely not subject to regulation under Section 404 of the Clean Water Act.

Figure 3.9-1: FEMA Flood Zones in the Project Area



Wetlands

Natural depressions accumulate runoff and seepage during wet periods, forming intermittent drainages and seasonal wetlands. Seasonal wetlands lack a restrictive layer, such as a hardpan or claypan; therefore, the hydrologic regime of these features is dominated by periods of saturated soil conditions rather than inundation. Two seasonal wetlands were identified within the proposed power line ROW. One small isolated wetland is located within a pasture grazed by horses, located approximately 0.25 miles north of Behymer Avenue and southeast of a large, man-made pond. A second, larger wetland is located just north of the man-made pond. The two seasonal wetlands are 0.13 and 0.63 acres, respectively. The seasonal wetlands are shown on Figures 3.5-2 and 3.5-3.

Flooding Potential and Dam Failure Inundation Areas

A Special Flood Hazard Area (SFHA), as defined by the Federal Emergency Management Agency (FEMA), is an area of land that has a 1 percent chance of being inundated by a flood during any given year. The SFHA is also referred to as a 100-year flood zone. FEMA Flood Insurance Rate Maps identify jurisdictional Zone A, Zone AH, and Zone X floodplains within the project area (FEMA 2011). FEMA flood zones within the project area are identified on Figure 3.9-1. Zone A is an SFHA area with a 1 percent annual chance of flooding; no depths of base flood elevations are defined for these areas. Zone AH is an SFHA with a 1 percent chance of shallow flooding in any given year to depths of 1 to 3 feet, usually in the form of a pond. Zone X denotes an area of moderate flood hazard with a 0.2 percent chance of flooding in any given year, and usually denotes the area between the limits of the 100-year and 500-year floods (FEMA 2011).

Approximately 40 percent of the proposed substation site and 3,000 feet of the proposed power line would be located within an SFHA Zone AH floodplain. Trenches for the underground distribution line would be partially within a SFHA along Sunnyside Avenue. Approximately 1,150 feet of the trench for the buried distribution lines on both sides of Sunnyside Avenue would be installed within the FEMA-designated Zone AH floodplain immediately south of Shepherd Substation. An additional 100 feet of the FEMA-designated Zone A floodplain would be crossed for the overhead portion of the reconductored distribution line located at the Dry Creek crossing on Sunnyside Avenue just south of Shepherd Avenue.

The Friant Dam, along the San Joaquin River, is located approximately 8.5 miles north of the proposed substation site. The Friant Dam inundation area is located along the San Joaquin River, north and northwest of the project site, approximately 3 to 4 miles away at its closest point (Fresno County 2000). The storage capacity of Millerton Lake, which is formed by Friant Dam, is inadequate for full flood protection in wet years, and emergency releases from the lake may result in downstream flooding along the San Joaquin River (Fresno County 2000).

Big Dry Creek Dam, along Dry Creek, is located approximately 2 miles east of the proposed substation site. The dam and the associated Big Dry Creek Reservoir were constructed for

flood control purposes, and have a capacity of 30,200 acre-feet, which has exceeded the needs of historic flood events (USBOR and CDWR 2003). The duration of storage is restricted to a maximum of 90 days during the period from April through September. The project site is located within the estimated dam inundation area for Big Dry Creek Dam (Fresno County 2000).

Groundwater

Groundwater supplies a large portion of the water resources in the San Joaquin Valley. The project site is located in the 976,000-acre Kings Sub-basin of the San Joaquin Valley Groundwater Basin (CDWR 2003). Water-bearing units consist of unconsolidated continental deposits. Groundwater generally flows to the southwest (CDWR 2003).

Groundwater is in overdraft in the vicinity of the cities of Fresno and Clovis; however, artificial recharge programs in place since the 1970s caused the groundwater in the Fresno-Clovis area to be nearly in balance (Fresno County 2000). Groundwater in the Fresno area is estimated at approximately 120 to 130 feet bgs (City of Fresno 2011). Further north, in the project area vicinity, groundwater has been gauged at a depth of approximately 30 to 40 feet bgs, based on the CDWR spring 2008 groundwater elevation dataset (CDWR 2008). During subsurface exploration in August 2010, groundwater was encountered at a depth of approximately 40.5 feet bgs (Kleinfelder 2010). Groundwater levels are expected to be below the bottoms of pier shafts drilled for substation and pole foundations; however, a clay layer exists at depths between about 8 and 27.5 feet bgs that could seasonally restrict downward infiltration of surface water, creating a perched groundwater condition (Kleinfelder 2010).

There are several groundwater wells used for agricultural purposes located in the vicinity of the project area. The closest wells are located directly across from the proposed substation site on the east side of Sunnyside Avenue, between Behymer Avenue and Perrin Avenue.

Water Quality

Surface water quality of the Kings and San Joaquin Rivers is excellent for industrial, municipal, and irrigation uses, with low total dissolved solids, mineral constituent, and trace element concentrations (Fresno County 2000). Total dissolved solids concentrations of groundwater in the Fresno area are generally 600 milligrams per liter or less, though at greater depths, 2,000 milligrams per liter groundwater has been encountered (CDWR 2003). Nitrates and dibromochloropropane, a pesticide, have been detected in groundwater along the eastern side of the groundwater sub-basin (CDWR 2003).

3.9.2 REGULATORY SETTING

Federal

Clean Water Act

The Clean Water Act (CWA) has regulated the discharge of pollutants to waters of the United States from any point source since it was enacted in 1972. Amendments to the CWA in 1987 added section 402(p), which established a framework for regulating non-point source

stormwater discharges under the National Pollutant Discharge Elimination System (NPDES). The NPDES stormwater program is described below.

Drinking Water Standards

The National Primary Drinking Water Regulations (NPDWR) Maximum Contaminant Levels (MCLs) are derived from regulations set forth by the EPA. The regulations are enforceable federal standards for public water systems. Secondary Standard MCLs are derived from the National Secondary Drinking Water Regulations (NSDWR) and are not enforceable, but the EPA recommends adherence to secondary standards. The NSDWR acts as a guideline to avoid contaminants that potentially lead to cosmetic or aesthetic effects.

National Flood Insurance Act

The National Flood Insurance Act (1968) makes available federally subsidized flood insurance to owners of flood-prone properties. To facilitate identifying areas with flood potential, FEMA has developed Flood Insurance Rate Maps that can be used for planning purposes. . Federal regulations governing development in a 100-year floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations, enabling the FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

Porter-Cologne Water Quality Control Act and Section 401 of the Clean Water Act

The California Regional Water Quality Control Board (RWQCB) administers both the Porter-Cologne Water Quality Control Act and Section 401 of the Clean Water Act. The Porter-Cologne Water Quality Control Act, Water Code Section 13260, requires that "any person discharging waste, or proposing to discharge waste, within any region that could affect the 'waters of the State' to file a report of discharge" with the RWQCB. Waters of the State as defined in the Porter-Cologne Act (Water Code Section 13050 (e)) are "any surface water or groundwater, including saline waters, within the boundaries of the state."

Pursuant to Section 401 of the Clean Water Act, the RWQCB consider waters of the state to include, but not be limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked bay lands, seasonal wetlands, and riparian woodlands. The RWQCB has also claimed jurisdiction and exercised discretionary authority over "isolated waters."

State

Central Valley Regional Water Quality Control Board

Runoff water quality is regulated by the NPDES Program (established through the CWA, as described above). The objective of the NPDES program is to control and reduce pollutant discharge to bodies of water. The State Water Resources Control Board recently adopted a statewide policy on compliance schedules in NPDES permits that would require a discharger seeking a compliance schedule to provide the following documentation:

- Diligent efforts made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts
- Source control efforts that are currently underway or completed
- A proposed schedule for additional source control measures or waste treatment
- Data demonstrating current treatment facility performance
- The highest discharge quality that can reasonably be achieved until final compliance is attained
- A proposed schedule that is as short as practicable
- Additional information and analyses as determined by the Water Board on a case-by-case basis (SWRCB 2008)

Projects disturbing more than 1 acre of land during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of stormwater associated with construction activity. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the general permit, and includes Best Management Practices (BMPs) that would reduce impacts to surface water quality.

Section 1602 of the State Fish and Game Code

Section 1602 of the state Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel, or bank of any river, stream, or lake or proposing to use any material from a streambed, to first notify the CDFG of such activity. Based on information contained in the notification form and a possible field inspection, the CDFG may propose reasonable modification in the proposed construction as would allow for the protection of fish and wildlife resources. The notification requirement generally applies to any work undertaken within the annual high water mark of a wash, stream, or lake that contains or once contained fish and wildlife, or supports riparian vegetation.

3.9.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to hydrology and water quality is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
B) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☒	☐	☐
C) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?	☐	☐	☒	☐
D) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?	☐	☐	☒	☐
E) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
F) Otherwise substantially degrade water quality?	☐	☒	☐	☐
G) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
H) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☒	☐	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
I) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☒	☐	☐
J) Cause inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

A) Would the project violate any water quality standards or waste discharge requirements?

Construction. Construction activities that expose and relocate soil, including substation pad construction, pole installation, access road construction, trench excavation, and stormwater detention basin and SPCC basin excavation, have the potential to increase sediment and pollutants in stormwater runoff and increase erosion along exposed slopes and disturbed ground. As required in the Construction General Permit and project SWPPP, PG&E would install, monitor, and maintain appropriate erosion and sediment controls to prevent sediment-laden runoff from reaching nearby waterways or wetlands. The stormwater detention basin within the substation site would be designed and constructed as defined in APM WQ-2. The site would be graded so that drainage is directed to the stormwater detention basin, or other infiltration features needed for the project in accordance with the SWPPP.

The project would not create a new point-source discharge to a waterway. The project will also not result in a fill to any water or wetland. The proposed distribution line at Enterprise Canal would be constructed using jack and bore or HDD techniques to avoid impacts to waters. Seasonal wetlands located within the proposed alignment for the power line would be avoided by the proposed project in accordance with APM Bio-19 (Section 3.5) and APM WQ-2.

Construction activities would include the use of heavy equipment that uses petroleum products, hydraulic oil, and other chemicals. Any potential impacts to stormwater runoff from the use of these materials would be minimized through containment of any releases before they can impact stormwater, as specified in the SWPPP (APM Geo-1/WQ-1). APM Haz-1 (Section 3.8), which requires that emergency spill response and clean-up kits be available on site for the cleanup of any accidental spill, and APM Haz-2 (Section 3.8), which includes provisions for use of the SPCC basin to contain accidental spills, would further reduce impacts to a less than significant level. Two additional APMs identified by the

applicant (APMs Bio-10 and -11) restrict vehicle fueling and maintenance to areas located more than 100 feet from water bodies and require the availability of spill prevention and clean-up equipment.

Non-point source discharges of sediment to area waterways could occur as a result of the project. Discharges would be minimized through the implementation of APMs Geo-1/WQ-1, WQ-2, and WQ-3. APM Geo-1/WQ-1 requires the development and implementation of an Erosion Control and Sediment Transport Plan and, in combination with APMs WQ-2 and WQ-3, which would restrict work in seasonal wetland areas and other waterbodies, and require the construction of a stormwater detention basin. Through implementation of the specified APMs, impacts to water quality would be less than significant.

> **APM WQ-2:** PG&E will avoid working within seasonal wetlands, ponds, or other water bodies. No poles will be placed within seasonal wetlands. The limits of seasonal wetlands adjacent to the work areas will be flagged in the field for avoidance. Underground canal and creek crossings will be drilled or bored underneath the water body.
>
> **APM WQ-3:** PG&E will engineer a permanent infiltration basin within the substation perimeter to capture on-site stormwater, clean it of potential pollutants, and infiltrate it into the local groundwater table. Sizing and design of the facility will follow industry best practices, including Fresno County and California Stormwater General Permit guidelines.

Operation and Maintenance. Operation-related discharges are not anticipated; however, discharges could occur through accidental spills from substation equipment. Potential impacts from spills would be avoided through the installation of the on-site SPCC retention basin as specified in APM Haz-2, which would contain on-site spills. During project operation, the substation would be unmanned and controlled remotely. Routine inspections by substation personnel would occur monthly or as needed under emergency conditions. Substation equipment and the power line interconnection would be inspected annually, minimizing the amount of foot and vehicle traffic on site. A more comprehensive inspection would occur every 3 to 5 years. Impacts to water quality standards or waste discharge requirements would be less than significant.

> ***B) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?***

Construction. The project would not use groundwater for construction of the proposed project (i.e., dust control, and water for implementation of APM Haz-3). Any required water would be brought from off-site source and delivered to the site in water trucks. The local groundwater basin is partially recharged through infiltration of surface water through pervious surfaces, including those on the project site. The majority of the project site, apart from asphalt roads and areas occupied by equipment, would be covered with pervious

gravel; however, PG&E would need to install some impervious surfaces, such as concrete pads, to support the substation infrastructure. A sediment detention basin would be constructed within the proposed substation site to allow for infiltration to the aquifer. While the proposed power line alignment passes within an infiltration/retention basin managed by the Fresno Municipal Flood Control District, the poles would not restrict groundwater recharge within the basin.

A clay layer between about 8 and 27.5 feet bgs could seasonally restrict downward infiltration of surface water, creating a perched groundwater condition. Temporary casings or slurry drilling techniques would be used if perched groundwater is encountered in foundation bores. (Kleinfelder 2010). Dewatering of the site is not expected because the noted depth to groundwater is 40 feet, and well below the depth of the foundations. Should groundwater be encountered during excavation, the recommendations of the geotechnical report would be implemented (Appendix C).

Operation and Maintenance. PG&E would be responsible for maintaining the almond trees or replacement vegetation along the north and east sides of the 5-acre parcel during ongoing operation and maintenance of the substation site. PG&E proposes to construct a groundwater well within the proposed substation site to provide a supply of water for irrigation. Under the proposed project condition, most of the 5 acres would be cleared of trees, reducing the amount of water required for irrigation of the area. The use of groundwater for irrigation at the substation would require less groundwater irrigation than under existing conditions because the majority of the almond trees within the 5-acre parcel would be cleared. As a result, the project would have a less than significant impact on groundwater supply and groundwater recharge.

C) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?

Construction. The proposed project would not alter the course of a stream or river. The proposed underground crossing of Enterprise Canal associated with the Shepherd West 21-kV distribution line would utilize jack and bore or HDD construction techniques (refer to section 2.5 of the Project Description). The construction activities relating to the underground crossing would be set back from the canal. The second crossing of Enterprise Canal would be overhead along Sunnyside Avenue. Neither crossing would alter the course of, or otherwise affect Enterprise Canal. The proposed project would avoid impacts to area streams and rivers and would not directly or indirectly alter their courses.

Agricultural fields surrounding the project are routinely flooded during irrigation. The project would be constructed at a slightly higher elevation than the surrounding areas to prevent flooding from local flood irrigation. This change in area drainage would not be expected to increase erosion or siltation, on or off site, as the proposed substation site is only 5 acres, and an infiltration basin would be constructed on-site to prevent stormwater runoff from leaving the site. The stormwater detention basin, in combination with the small

footprint of the substation, would ensure that the project would not result in substantial soil erosion or siltation on or off site. Construction of the power and distribution lines would not result in a change to area drainage patterns. As a result, impacts would be less than significant.

Operation and Maintenance. Project operation and maintenance would not involve activities that would alter the drainage pattern of the site. During project operation, the substation would be unmanned and controlled remotely. Routine inspections by substation personnel would occur monthly or as needed under emergency conditions. Substation equipment and the power line would be inspected annually, minimizing the amount of foot and vehicle traffic on site. A more comprehensive inspection would occur every 3 to 5 years. Operation and maintenance activities would not alter drainage patterns or cause erosion.

D) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?

Construction. No stream or river courses would be altered as a result of project construction. Jack- and-bore or HDD techniques would not affect Enterprise Canal. Drainages along the power line and distribution lines would not be altered and would not cause flooding.

The project would be constructed at a slightly higher elevation (up to 2 feet higher) than the surrounding areas to prevent local flood irrigation from affecting substation equipment. While the substation construction would include additional impervious surfaces, it would not significantly increase the rate or amount of surface runoff. PG&E has proposed APM WQ-3 to construct a stormwater detention basin within the substation site. The stormwater detention basin and other permanent BMPs would be sized as required under the Construction General Permit, Order 2009-009, so that post-project run-off volume matches pre-project run-off volume. The project would therefore have a less than significant impact on area flooding.

Operation and Maintenance. Project operation and maintenance would not involve activities that would alter the drainage pattern of the site. Impacts would be less than significant.

E) Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Construction. Small amounts of water would be used for dust control during project construction. The use of water for dust control would be minimal and would not exceed the capacity of stormwater drainage systems or provide an additional source of polluted run-off.

Construction of the project would also include the creation of impervious surfaces at the substation site. The substation site is currently vegetated with almond trees. The proposed

project would include removal of the vegetation and the site would be covered with gravel. Two paved access roads approximately 10 feet wide would also be added to the site. As a result of the change in surface cover and increase in impervious surfaces on the site, runoff from the site could increase. To reduce the potential for an increase in post-project runoff, PG&E has proposed APM WQ-3 to construct a stormwater detention basin within the substation site. The stormwater detention basin and other permanent BMPs would be sized as required under the Construction General Permit, Order 2009-009, so that post-project run-off volume matches pre-project run-off volume. During significant storm events, an increase in runoff from the site could occur; however, this increase would be less than significant due to the small size of the project (approximately 5 acres) relative to that of the watershed and the implementation of permanent BMPs as required by SWRCB. Impacts to existing or planned stormwater drainage systems and the creation of substantial additional sources of polluted runoff would be unlikely, and are considered less than significant.

Operation and Maintenance. The proposed project would not generate substantial runoff water during operation. The project would be constructed with appropriate drainage facilities to minimize runoff, and the majority of the substation site, apart from asphalt roads and areas occupied by equipment, would be covered with pervious gravel. During project operation, the substation would be unmanned and controlled remotely. Routine inspections by substation personnel would occur monthly or as needed under emergency conditions. Substation equipment and the power line interconnection would be inspected annually, minimizing the amount of foot and vehicle traffic on site. A more comprehensive inspection would occur every 3 to 5 years. Impacts would be less than significant.

F) Would the project otherwise substantially degrade water quality?

Construction. During construction, there is the potential for subsurface excavation and trenching to cause damage to underground water lines or irrigation canals. Damage to these structures could cause the release of sediment laden water to downstream areas. Mitigation Measure Hydrology-1 would reduce this potential effect to less than significant.

> **Mitigation Measure Hydrology-1:** PG&E will be responsible for contacting property owners to help in identifying underground waterlines prior to construction. PG&E will design construction activities to avoid impacts to a known waterline to the extent that sufficient information is available to identify the precise location of the line. Should PG&E cause damage to an irrigation ditch or waterline during construction, PG&E will be responsible for contacting the owner to shut off the water supply, repairing the water line or irrigation ditch, and containing released water to the extent feasible.

Operation and Maintenance. Operation and maintenance of the proposed project would include maintaining three rows of almond trees on the north and east sides of the proposed substation. PG&E will provide a water supply to irrigate these trees and any needed replacement plantings. There is the potential for damage to the irrigation system during operation and maintenance of the substation, and discharge of sediment laden water to

downstream areas could result. Mitigation Measure Hydrology-2 would be implemented to reduce this potential impact to a less-than- significant level.

Mitigation Measure Hydrology-2: In the case of a leak or other damage to the irrigation system utilized for the almond trees on the proposed substation site, PG&E will be responsible for repairing the irrigation system and employing BMPs as necessary to contain water released from the irrigation system.

G) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The project would not involve any new housing. No impacts would occur.

H) Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

Approximately 1,150 feet of the underground distribution alignment, approximately 40 percent of the substation site, and 3,000 feet of the new power line would be located in a FEMA-designated Zone AH floodplain (see Figure 3.9-1). Power pole foundations would be placed to avoid increased flooding onto adjacent roadways. Due to the limited size of the power pole footprint, the power poles would not impede or redirect flows. The underground distribution line would not change surface drainage or increase flooding.

Construction of the substation includes the importation of approximately 8,500 cubic yards of fill material to raise the elevation of the substation site (up to 2 feet). The import of fill material to the floodplain and the increase in elevation of the substation site could redirect flood flows. This impact would not require revisions to FIRM mapping of an SFHA or bring new structures into the 100-year floodplain. The impact to flood flows and structures within the 100-year flood hazard area would be less than significant.

I) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

Construction. Approximately 1,150 feet of the underground distribution alignment, approximately 40 percent of the substation site, and 3,000 feet of the new power line would be located in a FEMA-designated Zone AH floodplain. Project construction would not require workers to be in the flood zone for a significant amount of time. Should flooding occur, construction of the proposed project would be halted and work would not resume until the site is sufficiently dry to allow construction personnel and equipment to access the site.

The project site is also located in the estimated dam inundation area for Big Dry Creek Dam. Big Dry Creek Reservoir has sufficient capacity to contain runoff during flooding, and historically only 50 percent of its storage capacity has been used during flood events. The likelihood of flooding as a result of dam failure at Big Dry Creek Dam is very low. The

proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding. Impacts would be less than significant.

Operation and Maintenance. The substation would be unmanned and controlled remotely during project operation. Routine inspections by substation personnel would occur monthly or as needed under emergency conditions. Substation equipment and the power line interconnection would be inspected annually, minimizing the amount of foot and vehicle traffic on site. A more comprehensive inspection would occur every 3 to 5 years. With the implementation of Mitigation Measure Hydrology-3, impacts to people or structures from flooding would be less than significant.

> **Mitigation Measure Hydrology-3:** Workers will not conduct construction activities in flooded areas during area flooding except as necessary to help alleviate the flooding or address emergency safety issues at the project site. Should flooding of the proposed substation or project area result in damage to substation structures or power poles, non-emergency repairs to these structures and/or pole replacement as necessary would be conducted when floodwaters subside and the area is safe for worker access. PG&E will inform CPUC of any flood damage to the project site that could change or require changes to the proposed project or affect the construction schedule.

J) Would the project cause inundation by seiche, tsunami, or mudflow?

The risk of inundation from a tsunami is greatest along an exposed coast, and greatly decreases with distance inland from the coast. The proposed project is located more than 120 miles from the Pacific Ocean; therefore, impacts from tsunamis would not occur. Millerton Lake, formed by Friant Dam, is located approximately 8.5 miles north of the proposed project site. The risk of inundation from a seiche on the lake is greatest in the immediate vicinity of the lakeshore; therefore, inundation of project structures by an unlikely seiche would not occur. The project area is not located downslope of any steep canyons; therefore, impacts from inundation by a mudflow would not occur.

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3.10 LAND USE AND PLANNING

3.10.1 ENVIRONMENTAL SETTING

Regional

The entire project area is located within unincorporated Fresno County. Figure 3.10-1 identifies City and County jurisdictions in the vicinity of the proposed project. A portion of the Shepherd West 21-kV distribution line and the overhead portion of the Sunnyside Avenue South 21-kV distribution line would be located within the City of Clovis "sphere of influence" (Figure 3.10-1). A sphere of influence is established by a Local Agency Formation Commission (LAFCO) and is "a plan for the probable physical boundaries and service area of a local agency" (California Government Code Section 56076). The sphere of influence represents an area likely to be annexed by the City of Clovis in the near future. Jurisdiction over those lands within the sphere of influence remains with the County, but the County's General Plan is required to be consistent with the City's General Plan for that area. The proposed project would be constructed entirely on private property and within the County franchise area. No state or federal lands are within the project area.

Fresno County

The Fresno County General Plan designation for the project area is shown on Figure 3.10-2, and the zoning land use designations for the project site are shown on Figure 3.10-3. The project area is located on land classified in the County General Plan as agricultural, and portions of the project area that fall within the Northeast Community Plan Area are zoned as rural residential land (Fresno County 2010). The zoning designation for the project area is Exclusive Agricultural District (AE) lands and Rural Residential (Fresno County 2004). Pursuant to §816.2 of the Fresno County zoning ordinance, electrical transmission and distribution substations are a permitted use within AE lands subject to approval (Fresno County 2004). Under GO 131-D, PG&E is not required to obtain discretionary permits from local jurisdictions because of the CPUC's exclusive jurisdiction over the design, siting, installation, operation, maintenance, and repair of electric transmission facilities (CPUC 1995).

Existing Land Uses

The substation would be located on agricultural land that is currently used as an almond orchard. The power line would be located within a new PG&E ROW that would be 60 feet wide. The power line would be approximately 15 feet west of the existing 12-kV distribution line, and would require a new ROW. The ROW would traverse agricultural areas, residential lots, and a flood retention/infiltration basin managed by the Fresno County Metropolitan Flood Control District. Existing land uses along the power line include undeveloped areas, Fresno Metropolitan Flood Control District retention basin, rural residential, and agricultural. The distribution line alignments will be located entirely within County franchise areas. Existing land uses along the distribution line alignments include rural residential and agricultural.

Figure 3.10-1: City and County Jurisdictions in the Project Vicinity

Figure 3.10-2: Fresno County General Plan Designations

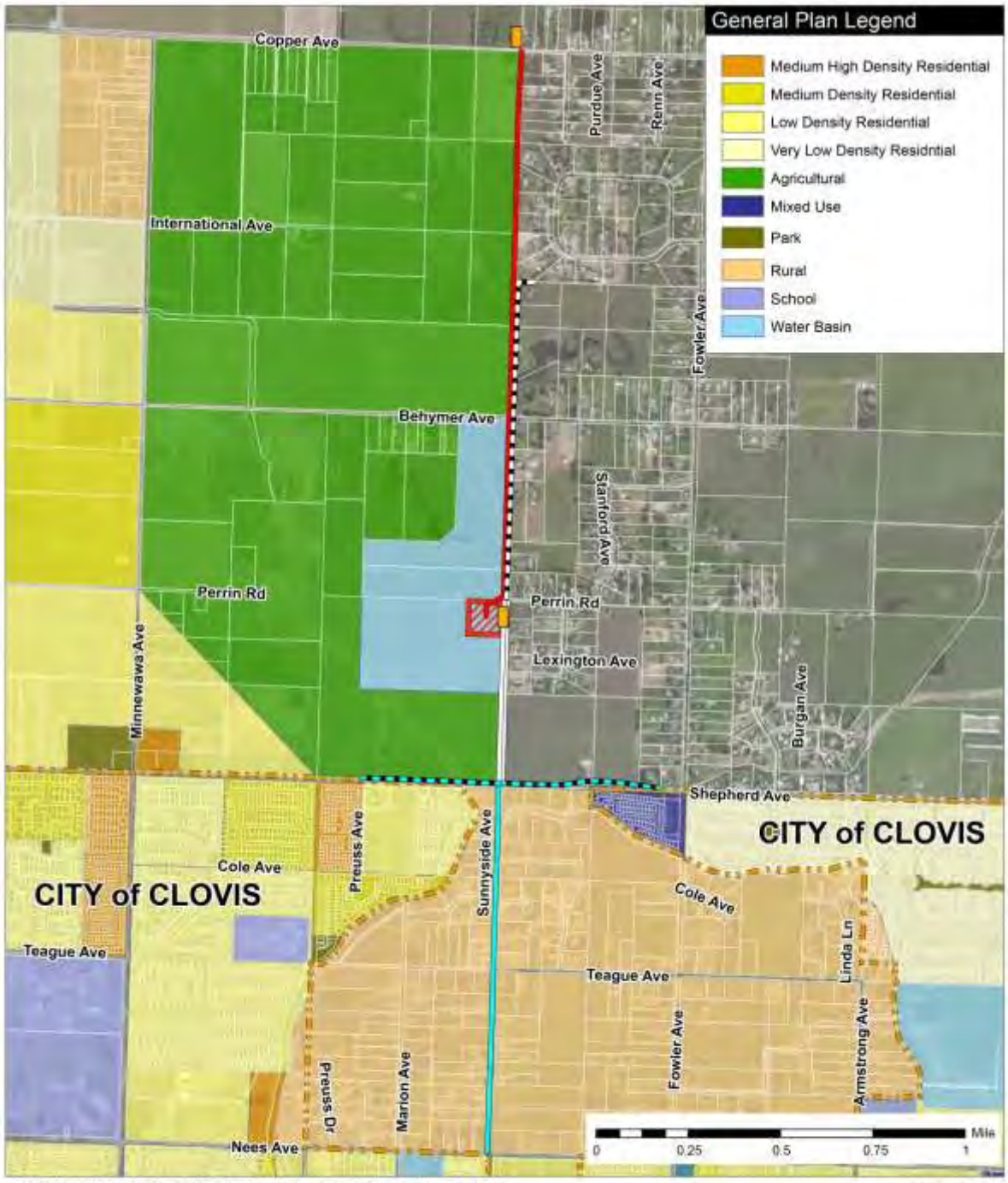
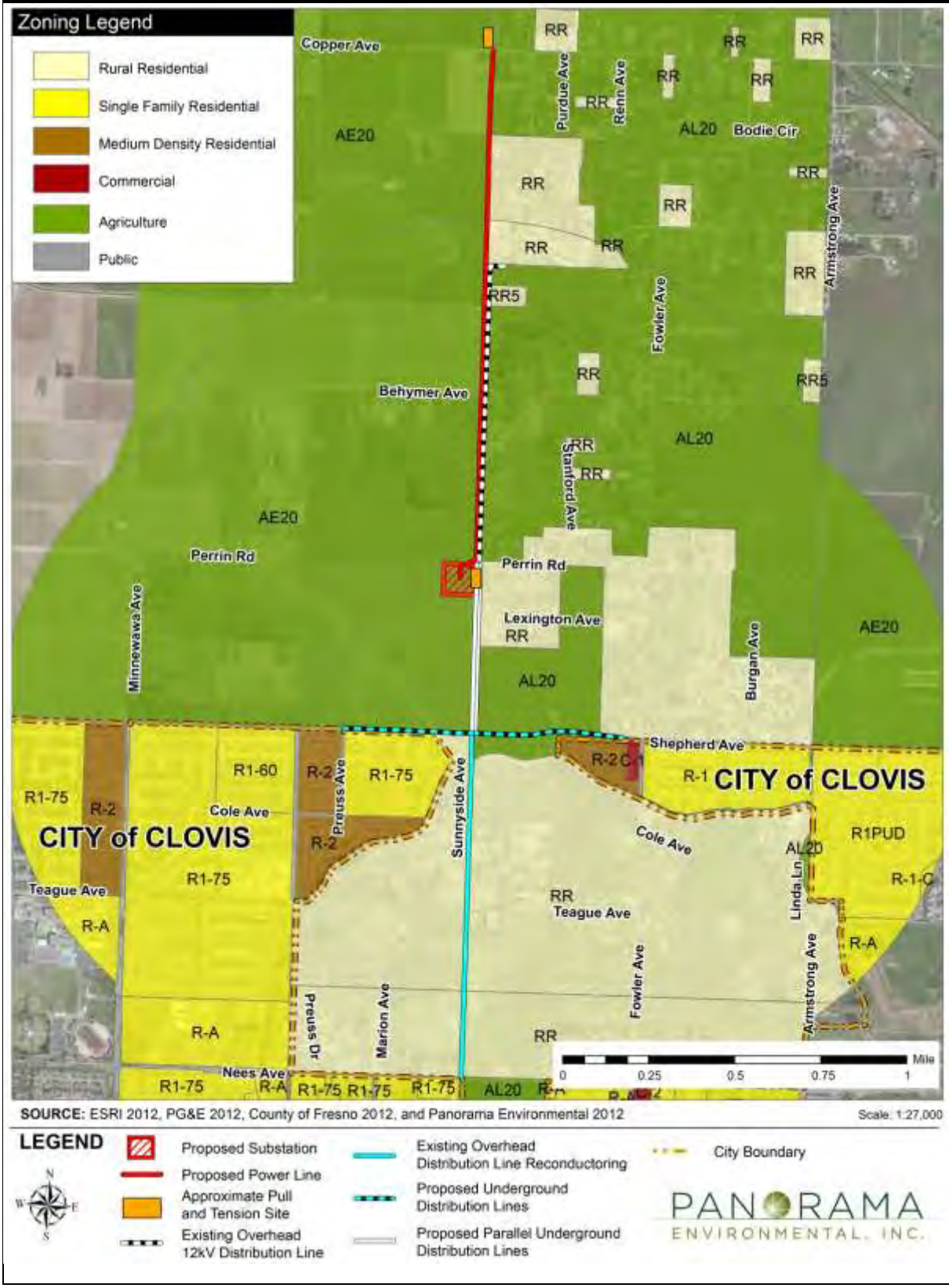


Figure 3.10-3: Fresno County Zoning Designations



3.10.2 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to land use and planning is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Physically divide an established community?	☐	☐	☐	☒
B) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
C) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

A) Would the project physically divide an established community?

Construction and operation of the proposed substation station, power line, and distribution lines would not create a permanent barrier that impedes pedestrian or vehicle access to community features or services, and as such would not divide an established community. No impact would occur.

B) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed project would be consistent with applicable Fresno County General Plan objectives, policies, and zoning ordinances. The project area is zoned as AE. Although the zoning designation AE is designed to protect the general welfare of the agricultural community from encroachments of non-related agricultural uses, electrical transmission substations and electric distribution substations are allowed on lands zoned AE with issuance of the appropriate review and approval (Fresno County 2004). Under GO 131-D, PG&E is not required to obtain discretionary permits from local jurisdictions because of the CPUC's exclusive jurisdiction over the design, siting, installation, operation, maintenance, and repair of electric transmission facilities (CPUC 1995).

A new ROW would be required for the 115-kV power line. The power line ROW would include public property in the case of the retention basin, and multiple private properties located north of the proposed substation. Because the project would require access through private properties, Mitigation Measure Land Use-1 would be implemented to reduce conflicts associated with construction of the project on private property.

> **Mitigation Measure Land Use-1:** PG&E will notify property owners within 300 feet of the project area at least 30 days prior to construction to alert them of project activities.

The impact of the proposed project on a land use plan or policy would be less than significant.

> ***C) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?***

PG&E has developed a habitat conservation plan (HCP) for operation and maintenance of their facilities, including minor construction activities, within the San Joaquin Valley (PG&E 2007). PG&E is the project proponent and is also the entity responsible for developing and administering the HCP. The proposed project would be consistent with the HCP. The relevant AMMs included in the HCP would be incorporated into this project, as identified in Section 3.5. USFWS has indicated that he HCP would apply to this project (Appendix A). There is no other HCP or natural community conservation plan for the area. The proposed project would not conflict with the HCP.

3.11 MINERAL RESOURCES

3.11.1 ENVIRONMENTAL SETTING

Fresno County has been a leading producer of minerals due to the abundance and wide variety of mineral resources present in the County. Extracted resources include:

- Aggregate products (sand and gravel)
- Fossil fuels (oil, natural gas, and coal)
- Metals (chromite, copper, gold, mercury, and tungsten)
- Minerals used in construction or industrial applications (asbestos, high-grade clay, diatomite, granite, gypsum, and limestone)

Aggregate and petroleum are the County's most significant extractive resources and play an important role in maintaining the County's overall economy (Fresno County 2010).

The California State Mining and Geology Board uses the Mineral Resource Zone (MRZ) system to classify California's mineral resources. The MRZs are defined as follows:

- MRZ 1: Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that there is little likelihood for their presence
- MRZ 2: Areas where adequate information indicates significant mineral deposits are present or where it is judged that there is a high likelihood for their presence
- MRZ 3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data
- MRZ 4: Areas where available information is inadequate for assignment to any other MRZ.

The proposed project is located in an area designated as MRZ 3 (Fresno County 2000). There are no known important mineral resources or active mining operations within 1 mile of the proposed project area.

3.11.2 REGULATORY SETTING

Federal

There are no federal laws or regulations related to mineral resources that are applicable to the proposed Project.

State

Surface Mining and Reclamation Act of 1975

Mineral resource zones are designated by the CGS where access to important mineral resources may be threatened, according to the provisions of the California Surface Mining and Reclamation Act of 1975 (SMARA). The SMARA requires that all jurisdictions

incorporate mapped mineral resources approved by the State Mining and Geology Board (SMGB) into their general plans. The Department of Conservation's Office of Mine Reclamation (OMR) and the SMGB are jointly charged with ensuring proper administration of the act's requirements. The SMGB promulgates regulations to clarify and interpret the act's provisions and also serves as a policy and appeals board. The OMR provides an ongoing technical assistance program for lead agencies and operators, maintains a database of mine locations and operational information statewide, and is responsible for compliance-related matters.

Local

Fresno County General Plan

The Fresno County General Plan includes policies related to minerals, which include, but are not limited to, the following:

> **OS-C.2:** The County shall not permit land uses incompatible with mineral resource recovery within areas designated as MRZ 2.
>
> **OS-C.10:** The County shall not permit land uses that threaten the future availability of mineral resources or preclude future extraction of those resources.

Fresno County Code

Mineral Resource Zone 2 (17.08.345), defines an MRZ 2 as an area where adequate information indicates that significant mineral deposits are now present, or where it is judged that a high likelihood for their presence exists (Ord. 88-007 Section 2).

3.11.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to mineral resources is assessed below for each element of the Environmental Checklist, Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
B) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

A) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The proposed project is located in an area designated as MRZ 3 (Fresno County 2000). There are no known important mineral resources or active mining operations in the immediate vicinity of the proposed project area. Therefore, the project would not result in the loss of availability of a known mineral resource. No impact would occur.

B) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

There are no important mineral resource recovery sites delineated on local plans, specific plans, or other land use plans within the project area, or in the vicinity (Fresno County 2000). The project would not affect the availability of a delineated locally important mineral resource recovery site. No impact would occur.

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3.12 NOISE

3.12.1 ENVIRONMENTAL SETTING

General Background

Noise is defined as unwanted sound. The most common noise metric is the logarithmic decibel (dB) scale referenced to the minimum threshold pressure for audibility. An A-weighted dB (dBA) deemphasizes the very low and very high frequencies of sound, similar to how a human perceives or hears sound, achieving a strong correlation in terms of how to evaluate acceptable and unacceptable sound levels. A change of 5 dBA is perceived as a noticeable change in sound level. Noise levels attenuate at a minimum rate of 6 dBA per doubling of distance between the source and receptor (NoiseNet.org 2008). Table 3.12-1 lists the definitions of various acoustical terms used in this analysis.

Ground-borne Vibrations

Vibrating objects in contact with the ground radiate energy through the ground. Vibrations from large and/or powerful objects are perceptible by humans and animals. Vibrations can be generated by construction equipment and activities. Vibrations attenuate depending on soil characteristics and distance.

The U.S. Department of Transportation (USDOT) has guidelines for vibration levels from construction activities, and recommends that the maximum peak particle velocity levels remain less than 0.05 inch per second (in/sec) at the nearest structures. Vibration levels greater than 0.5 in/sec have the potential to cause architectural damage to normal dwellings. The USDOT also states that vibration levels greater than 0.015 in/sec are sometimes perceptible to people, and the level at which vibration becomes annoying to people is 0.64 in/sec (USDOT 2006).

Regional Noise Environment

The regional noise environment is typical of low and medium-density residential areas with noise levels between 50 and 60 dBA (Transcon 2010). Noises are generated primarily from vehicular traffic along roadways and local agricultural operations.

Sensitive Noise Receptors

Sensitive noise receptors include residential areas, hospitals, schools, performance spaces, businesses, and religious congregations. Sensitive noise receptors within the project area are limited to residences location east of the substation site and scattered along the power line and distribution line alignments, as depicted in Figures 3.1-6 through 3.1-13. The sensitive receptor closest to the substation is a home located approximately 260 feet east of the proposed substation fence. The sensitive receptors closest to the power and distribution lines are approximately 50 feet from these alignments. These sensitive receptors include a newly constructed home located just south of the power line terminus at E. Copper Avenue, and homes along N. Sunnyside Avenue where the existing 12-kV distribution line would be reconductored.

Table 3.12-1: Definitions of Acoustical Terms

Term	Definition
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound to the reference pressure. The reference pressure for air is 20.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter deemphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear, and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average A-weighted sound level during the measurement period. The hourly L_{eq} used for this document is denoted as dBA L_{eq}.
Community Noise Equivalent Level (CNEL)	The average A-weighted sound level during a 24-hour day, obtained after addition of 5 dB to sound levels in the evening from 7:00 pm to 10:00 pm and addition of 10 dB to sound levels in the night from 10:00 pm to 7:00 am. The CNEL is generally computed for annual average conditions.
Day/Night Noise Level (L_{dn})	The average A-weighted sound level during a 24-hour day, obtained after addition of 10 dB to sound levels measured in the night from 10:00 pm to 7:00 am.
Maximum Noise Emission Level (L_{max})	The maximum noise emission level of equipment based on work cycles.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	Noise that intrudes over and above the existing ambient noise level at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, time of occurrence, and tonal or informational content, as well as the prevailing ambient noise level.

SOURCE: Caltrans 1998

3.12.2 REGULATORY SETTING

Federal

EPA Levels of Environmental Noise Requisite to Protect Public Health and Welfare

In 1974, the EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA determined that a day-night sound level of 55 dBA protects the public from indoor and outdoor activity interference.

The EPA, the FHWA, and the U.S. Department of Transportation (DOT) have developed guidelines for noise. Under the authority of the Noise Control Act of 1972, the EPA established noise emission criteria and testing methods, published at 40 CFR Part 204, which apply to some construction and transportation equipment (i.e., portable air compressors, and medium- and heavy-duty trucks).

State

CEQA does not specify a numerical threshold for "substantial increases" in noise. Noise impacts within the project area should be managed and evaluated based on local plans, policies, and ordinances.

Local

Fresno County

Construction-related activities are exempt from County noise standards and policies (Section 8.40.060C of Fresno County Code), provided such activities do not take place before 6:00 a.m. or after 9:00 p.m. on any day except Saturday and Sunday, or before 7:00 a.m. or after 5:00 p.m. on Saturday or Sunday.

The Fresno County Code 8.40.040 sets forth outdoor noise standards (Table 3.12-2). A special exception has been made for electrical substations in Section 8.40.090, stating that "Notwithstanding the provisions of Section 8.40.040, noise sources associated with the operation of electrical substations shall not exceed 50 dBA when measured as provided in Section 8.40.030."

The noise ordinance further states that noise sources associated with work performed by private or public utilities in the maintenance or modification of its facilities shall be exempt (80.04.040 G).

Table 3.12-2: Fresno County Noise Element Standards

Receiving Land Use	Noise Level Standard Descriptor	Daytime Standard (7 a.m. – 10 p.m.) (dB)	Nighttime Standard (10 p.m. – 7 a.m.) (dB)
Residential	Hourly Average (L_{eq})	50	45
Residential	Maximum Level (L_{max})	70	65

SOURCE: Fresno County 2000

3.12.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to noise is assessed below for each element of the Environmental Checklist, Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
B) Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐
C) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
D) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
E) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
F) For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

A) Would the project expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?

Construction. During construction, noise will be generated from the use of construction equipment identified in Tables 2.5-1, 2.5-2, and 2.5-3 in Chapter 2, and from vehicles used to transport crews and materials to the project area. Noise levels for typical construction equipment at a distance of 50 and 100 feet from the equipment are displayed in Table 3.12-3.

Construction of the project would require the use of heavy construction equipment. Construction activities would occur over undeveloped land, agricultural land, and low-

density residential areas. Construction activities near residential areas would be limited to daytime hours (i.e., between 6:00 a.m. and 9:00 p.m. on weekdays) as described below in APM Noise-1. Construction activities will not take place as night, except as necessary for safety reasons to perform certain construction activities when electrical clearances are available. Specifically, cut-over activities are typically performed at night when electricity loads are at their lowest level. These activities would be limited to the hours required to complete the work, and the work would involve a line truck. APMs Noise-1, Noise-3, Noise-4, Noise-6 and Noise-7 as well as APM GHG-1/Noise-5 further minimize construction noise impacts.

Equipment use will be temporary. The maximum noise levels will range between 82 and 94 dBA at 50 feet from construction equipment. As a general rule of thumb, noise levels are reduced by 6 dB every time the distance from a point source is doubled. A doubling of noise generally results in a 3 dBA increase in sound level.

Sensitive noise receptors are limited to residences located east of the substation site and scattered along the power and distribution line alignments (Figures 3.1-6 through 3.1-13). The nearest sensitive receptor is a residence approximately 260 feet east of the substation fence. The sensitive receptor closest to the power line is a newly constructed home located just south of the power line terminus at E. Copper Avenue, which is approximately 50 feet from the power line. While the alignment would be approximately 50 feet from the residence, the power pole would be placed at a further distance from the residence. 17 TSP poles would be placed along the entire 1.5 mile alignment, and construction access requirements include a 50 foot radius around each pole. The sensitive receptor closest to the distribution line alignment would be approximately 50 feet from the alignment. Twelve residences are located within 100 feet of the distribution line alignment along N. Sunnyside Avenue. Work along the reconductored portion of the Sunnyside South 21-kV distribution line would include removal and replacement of poles. The timeframe for this activity would be approximately 1.5 months.

Table 3.12-3 lists equipment likely to be used during construction and the typical noise levels from such equipment at a distance of 50, 100 and 1,000 feet from the source. The highest maximum noise levels generated by project construction typically would range from approximately 71 to 94 dBA at a distance of 50 feet from the noise source. Average construction-generated noise levels would be between approximately 75 and 85 dBA measured at a distance of 50 feet from the project site during busy construction periods. These noise levels would be expected when construction occurs in the immediate vicinity of sensitive receptors in the project area. Construction noise levels could, at times, exceed 50 dBA L_{eq} at residences close to the project site; however, construction activities are exempted from noise thresholds set by the County.

Table 3.12-3: Construction Equipment Types and Typical Noise Emission Levels

Equipment	Typical Noise Level at Distances from Source (dBA)		
	50 ft	100 ft	1,000 ft
Backhoe	80	70	50
Compactor	80	67	47
Concrete mixer truck	85	75	55
Crane	85	71	51
Pick-up truck	55	45	25
Dump truck	84	74	54
Equipment/tool van[2]	55	45	25
Dozer	85	75	55
Water truck[1]	84	74	54
Grader	85	75	55
Rock transport[1]	84	74	54
Roller	85	72	52
Hole auger	85	72	52
Line truck and trailer[2]	55	45	25
Truck-mounted auger	84	71	51
Truck	84	74	54
Generator	82	73	53
Pneumatic tool	85	72	52
Compressor	80	70	50

Notes:

[1] Based on noise level for dump truck.

[2] Based on noise level for pick-up truck.

SOURCE: FHA 2006

The following APMs are included as part of the project and minimize noise from construction.

APM Noise-1: Construction will not occur before 6:00 a.m. or after 9:00 p.m. on any day except Saturday or Sunday, when construction will not occur before 7:00 a.m. or after 5:00 p.m. Work will only be conducted outside of these hours as required for project

safety or to take advantage of the limited times when the power line can be taken out of service.

APM Noise-3: Where feasible, construction traffic will be routed to avoid sensitive noise receptors such as residences, schools, religious facilities, hospitals, and parks.

APM Noise-4: Stationary equipment used during construction will be located as far as practical from sensitive noise receptors.

APM Noise-6: Where feasible, equipment will be used that is specifically designed for low noise emissions and equipment powered by electric or natural gas as opposed to diesel or gasoline.

APM Noise-7: Residents in areas of heavy construction noise will be notified prior to commencing construction activities. Notification should include written notice and the posting of signs in appropriate locations with a contact number that residents can call with questions and concerns.

Construction of the proposed project would not expose people to or generate noise levels in excess of established standards. The Fresno County noise ordinance exempts construction activities from the noise standards identified in Table 3.12-2 if the noise is generated during specific hours. Through implementation of APM Noise-1, the proposed project would conform to these requirements and would have a less than significant impact.

Operation and Maintenance. The proposed substation would include the following components:

- New 115/21-kV distribution substation, with three 45 MVA transformers at full build-out
- Up to 3 distribution circuits per transformer leaving the substation in underground conduits and either transitioning to an overhead position or remaining underground
- A 21/12-kV transformer
- Two paved access roads from Sunnyside Avenue to the substation
- A storm water detention basin and SPCC basin

Transformer noise generally contains a pure-tone or "hum" component, as well as noise associated with cooling fans and oil pumps that operate periodically. The transformers will be located near the eastern boundary of the substation. The nearest sensitive receptor is approximately 370 feet from this noise source. The approximate maximum noise level at this distance created from the operation of the three 45-MVA, 115/21-kV transformers will be approximately 46 dBA L_{eq}. This estimated maximum noise level is below the typical ambient noise level for the area of 50-60 dBA and below the 50 dBA L_{eq} acceptable noise level average for electrical substations contained in the Fresno County Noise Ordinance. Less than significant noise levels will be further reduced by a planned 10-foot high prefabricated concrete wall along the eastern and northern side of the substation perimeter. No permanent

increase to the noise environment would occur as a result of operation of the proposed substation.

Operation of the electrical power lines will not generate noise. Corona, a phenomenon that can cause a tiny electric discharge than can ionize air close to conductors, creating a noise, is usually not a design issue for power lines rated at 230-kV and lower voltages.

Facility maintenance would create a new source of noise. Facility maintenance could result in the short-term generation of noise during repair operations, which would be similar to the noise generated from construction. It is expected that the facility would be maintained on an as needed basis. Impacts would be temporary and less than significant.

B) Would the project expose persons to or generate excessive ground-borne vibration or ground-borne noise levels?

Construction. Vibration from construction may result from heavy equipment driving on uneven surfaces, tamping the ground surface, and rock drilling. Tamping activities could generate vibration levels of 0.03 in/sec at a distance of 50 feet. These levels are dependent on the soil type at the construction site and the type of equipment used. Because vibration levels exceeding 0.64 in/sec could cause some persons to become annoyed, tamping operations could, under some circumstances, temporarily impact persons in buildings within 50 feet of construction equipment. The level of vibration depends upon the distance to the receptor, the type of soil, and the intensity of the equipment creating the vibration. Generally, construction-related groundborne vibration would be short-term and is not expected to extend beyond 25 feet from the generating source. No structures are located within 25 feet of the project. Project-related vibrations would not cause any structural damage. The construction of the project would not result in any significant impacts to sensitive receptors from vibrations. Impacts would be temporary and less than significant.

Operation and Maintenance. Project operation would not create any vibrations; therefore, no impact would occur. Should future maintenance require replacement of substation equipment or facilities, the impacts would be similar to those during construction of the substation and would be temporary and less than significant.

C) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

A permanent increase in ambient noise levels in the project vicinity would not occur. The permanent noises generated by an electrical substation are limited to transformer operation and equipment and vehicles used by workers performing periodic maintenance, as addressed in part A above. The noise from the proposed project would not permanently increase the ambient noise levels at receptors. Noise associated with routine inspection and maintenance of the project will be periodic, infrequent, isolated, and less than significant.

D) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction. Construction of the proposed project will require the temporary use of noise-generating equipment identified in Table 3.12-3. Construction of the substation would require the use of graders, backhoes, dozers, rollers, trucks, concrete mixers, generators, water trucks. Installation of power poles, underground distribution lines, and wire stringing would require the use of augers, trucks, cranes, backhoes, line trucks and trailer, concrete mixers, air compressors, generators, and equipment vans.

Noise levels could reach close to 94 dBA at the nearest sensitive receptors, depending on the equipment in use. The nearest sensitive receptor to the substation is 260 feet from the site. Construction noise levels would attenuate over this distance. Construction activities required for the distribution line could be as close as 50 feet to the nearest sensitive receptor. Approximately 4 months would be required for trenching and installation of the underground distribution lines. The overhead distribution line would be installed in approximately 1.5 months. The overhead line would require the replacement of 30 poles. Crews would move from one pole to the next and would work at each pole location for approximately 1-2 days. These construction activities would be conducted in compliance with local codes and ordinances, which restrict noise generating activities to the hours of 6:00 a.m. to 9:00 p.m.

Construction of the 17 new TSPs poles would require approximately 2 days at each pole location to construct the foundation. Approximately 4 days would be required to assemble all the poles and 4 days for conductor stringing. Implementation of APMs Noise-1 through Noise-7 would reduce the impact from the temporary construction related increase in noise. For the power line, cut-over activities could be conducted at night when electricity loads are at their lowest levels. Should work outside daylight hours be necessary, notification of the County and nearby residents and any appropriate measures to minimize disturbance would be implemented. Impacts resulting from a temporary increase in noise levels will be less than significant.

Operation and Maintenance. Operation of the substation and power line will not result in an increase in noise levels above allowable thresholds, although the substation and power lines may generate some noise as discussed in Part A. Impacts will be less than significant.

E) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

There are no public airports within 2 miles of the project, nor is the project located within an airport land use plan. The nearest public airport is approximately 5 miles from the proposed project location. No impacts would occur.

F) For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

There are no private airstrips in the vicinity of the project. The nearest private airstrip is approximately 4 miles northwest of the project area. No impacts would occur.

3.13 POPULATION AND HOUSING

3.13.1 ENVIRONMENTAL SETTING

Population

The proposed project would be entirely within an unincorporated area of Fresno County, located just north of the City of Clovis. Table 3.13-1 summarizes the population and recent trends for the areas most likely to be impacted by project-related growth, if any. The City of Clovis accounts for approximately 10 percent of Fresno County's population.

Table 3.13-1: Total Population

Geographic Region	2000 Census	2010 Population	2015 Projected Population
Fresno County	799,407	933,575	1,009,524
City of Clovis	68,468	95,631	96,971

SOURCE: USCB 2000A; USCB 2009a USCB 2009B; USCB 2010; CDOF 2007; City of Clovis 2006

Housing

The number of housing units and associated vacancy rates in Fresno County and the City of Clovis are listed in Table 3.13-2.

Table 3.13-2: Project Region Housing Units and Vacancy Rates (2000)

City/County	Housing Units	Vacancy Rate (percentage)
Fresno County	270,767	6.6
City of Clovis	25,250	3.6

SOURCE: USCB 2000A, USCB 2000B

3.13.2 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to population and housing is assessed below for each element of the Environmental Checklist, Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
infrastructure)?				
B) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
C) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere	☐	☐	☐	☒

A) Would the project induce substantial population growth in an area, either directly or indirectly?

Construction. Construction of the project would not increase the need for workers or for additional housing units in the area. The project would be constructed by the PG&E construction crew already working and living in the area. The crew members would be assembled from the local workforce and would commute to the project site from the general vicinity. Because existing PG&E construction crews already living in the area would be utilized for construction, the project's construction would not directly induce additional population growth.

All four substations within the Woodward Distribution Planning Area (DPA) are at capacity. The Woodward DPA serves the northeastern portion of the City of Fresno and the northwestern portion of the City of Clovis. Population growth within Fresno County was approximately 16 percent between 2000 and 2010 (USCB 2000A; USCB 2010). Population projections for the County reflect continued growth. By 2020, the population of the County is expected to be 1,113,785, and the population of both the City of Fresno and City of Clovis are projected to increase (Fresno County 2000). The projected growth would result in a 19 percent increase over the 2010 population. The proposed project would provide electricity for the projected growth in demand for electricity (Table 2.2-1). Therefore, construction of the project would not indirectly induce population growth. There would be no impacts to population and housing.

Operation and Maintenance. Operation and maintenance of the project would not require any new employees or on-site staff. Periodic maintenance work would be conducted by PG&E staff already located in the area. The project is needed to maintain and meet capacity for the anticipated growth of the area, and would not itself directly or indirectly induce growth.

B) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

The proposed substation, power line, and distribution line locations do not include any existing housing. The project would not displace any housing or necessitate the construction of replacement housing elsewhere; therefore, no impacts related to construction of replacement housing would result from the proposed project.

C) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The proposed substation, transmission and distribution line locations do not contain any existing residences. The project would not displace any people or residences, nor necessitate the construction of any replacement housing elsewhere. The proposed project would have no impacts related to replacement housing.

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3.14 PUBLIC SERVICES

3.14.1 ENVIRONMENTAL SETTING

Fire Protection and Emergency Services

The Fresno County Fire Protection District (FCFPD) has jurisdiction over the project area and would provide emergency response services to the project, if needed. The FCFPD encompasses approximately 2,655 square miles and serves a population of more than 220,000 citizens (FCFPD 2011). The station closest to the project area is the North Clovis Station 85 at 1392 Nees Ave in Clovis, approximately 1.5 miles west of the southern end of the Sunnyside Avenue South 21-kV distribution line.

Police Services

The Fresno County Sheriff's Office has four service areas. The project area is in the Area 2-Metro service area. There are 15 Patrol Training Officers and 5 detectives assigned to Area 2 (Fresno County Sheriff's Office 2011).

Schools

Woods Elementary School is the school closest to the proposed project, located approximately 0.3 miles south of the proposed Shepherd Avenue West 21-kV distribution line alignment and 1.5 mile southwest of the proposed substation. Woods Elementary is located at 700 Teague Avenue.

Parks

The proposed extension of Dry Creek Trail and Enterprise Trail would cross the distribution line alignments at Dry Creek and the Enterprise Canal (see Figure 3.14-1). A park is proposed at the corner of Shepherd and Sunnyside Avenues, adjacent to the distribution lines (Transcon 2010). There are also several housing development playground areas located within one mile of the project area (Fresno County 2010).

Hospitals

Clovis Community Medical Center (CCMC) is the hospital closest to the project area. CCMC provides a 24-hour emergency department, surgical services, diagnostic, and other services (CCMC 2011). CCMC is located at 2755 Herndon Avenue, approximately 3 miles southeast of the proposed substation.

3.14.2 REGULATORY SETTING

Federal

There are no federal laws or regulations related to public services that are applicable to the proposed Project.

State

Fire Protection

The California Fire Code contains regulations relating to construction and maintenance of buildings and the use of premises. Topics addressed in the Code include:

- Fire hydrants
- Automatic sprinkler systems
- Fire alarm systems
- Provisions intended to protect and assist first responders
- General and specialized fire safety requirements for new and existing buildings and premises

Local

Fresno County

Fresno County policies for Public Services are identified in the General Plan (2000) and include:

Policy PF-A.1: The County shall ensure through the development review process that public facilities and services will be developed, operational, and available to serve new development. The County shall not approve new development where existing facilities are inadequate unless the applicant can demonstrate that all necessary public facilities will be installed or adequately financed and maintained (through fees or other means).

Policy PF-G.2: The County shall strive to maintain a staffing ratio of two sworn officers serving unincorporated residents per 1,000 residents served. (This count of officers includes all ranks of deputy sheriff personnel and excludes all support positions and all sworn officers serving county wide population interests such as bailiffs, and sworn officers serving contract cities and grant specific populations).

Policy PF-H.2: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in unincorporated areas of the County shall not be approved unless adequate fire protection facilities are provided.

Policy PF-H.8: The County shall encourage local fire protection agencies in the county to maintain the following as minimum standards for average first alarm response times to emergency calls:

a. 5 minutes in urban areas;
b. 15 minutes in suburban areas; and
c. 20 minutes in rural areas.

Figure 3.14-1: Existing and Planned Recreation Facilities in the Project Area

3.14.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts on public service is assessed below for each element of the Environmental Checklist, Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
(i) Fire protection?	☐	☐	☒	☐
(ii) Police protection?	☐	☐	☐	☒
(iii) Schools?	☐	☐	☐	☒
(iv) Parks?	☐	☐	☐	☒
(v) Other public facilities?	☐	☐	☐	☒

A) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

(i) Fire protection?

The proposed project would not result in significant additional demands for fire protection, would not require additional fire services in the area, and would not impact fire protection and fire suppression objectives. The proposed project would not result in any adverse physical impacts associated with the provision of new or physically altered government facilities. Construction of the distribution lines along area roadways may require rerouting of traffic and/or lane closures around the work area for a short period of time during construction. Mitigation Measure Hazards-3 (Section 3.8) would adequately mitigate the potential impacts to fire protection services, so that adequate response times could be maintained throughout the construction period. Impacts to fire protection would be less than significant.

(ii) Police protection?

The proposed project would not result in any additional demands for police protection or cause physical effects related to provision of new or altered government facilities. The proposed PG&E security measures, including an 8-foot security perimeter fence, would be implemented for the substation to deter criminal activity. The proposed project would not require additional police services in the area. No impacts to police services would occur.

(iii) Schools?

The project would be constructed by local PG&E workers who currently live in the area and would commute to the project site. Any of their school-aged children would already be attending local schools; therefore the project would not affect school enrollment and no new schools would be necessary. No impacts to schools would occur.

(iv) Parks?

The proposed distribution alignments would cross the proposed recreational trails at Dry Creek and Enterprise Canal. However, construction and maintenance activities would be conducted prior to construction of these facilities and outside of the footprint for the recreational areas, as the proposed distribution line would either span the recreational area or drill beneath the proposed trail location. The project-related personnel and their families would not increase the use of existing neighborhood and regional parks or other recreational facilities, and as such substantial physical deterioration of these facilities would not occur or be accelerated. Thus, project construction and operation would have no impacts on parks.

(v) Other public facilities?

There would be no increase in the local population as a result of the project. Therefore, the project would neither increase demand for, nor alter the level of local public services required in the project area. No impacts to other public facilities would occur.

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3.15 RECREATION

3.15.1 ENVIRONMENTAL SETTING

Fresno County and the City of Clovis have extensive park and recreation systems. The proposed extensions of Dry Creek and Enterprise Trails are located within the proposed distribution line alignments. Several housing development playground areas are located within one mile of the project area (Fresno County 2010). A park is also proposed at Shepherd Avenue, along the west side of Sunnyside Avenue (Transcon 2010). Figure 3.14-1 identifies existing and proposed recreational elements located in the vicinity of the project area.

The Dry Creek Trail within the City of Clovis extends from Shaw Avenue to Shepherd Avenue. The trail passes along Dry Creek Park and Cottonwood Park. At Shepherd Avenue, the Dry Creek trail connects to the proposed extension of the Enterprise Trail, which follows Enterprise Canal southeast through the City of Clovis and is proposed for extension into Fresno County. North of Shepherd Avenue, an extension of Enterprise Trail is proposed parallel to Enterprise Canal within Fresno County (City of Clovis 2010). The Enterprise Trail includes a bicycle trail within the City of Clovis, and there are plans to extend this bicycle trail along the Enterprise Canal, north of Shepherd Avenue, (Fehr and Peers 2011).

3.15.2 REGULATORY SETTING

Federal and State

There are no federal or state laws or regulations related to recreation that are applicable to the proposed Project.

Local

Fresno County

The following policies from the Fresno County General Plan (2000) pertain to recreation within the project area:

> **OS-I.1:** The County shall develop a countywide Recreational Trail Master Plan, integrated with existing County facilities, similar facilities in cities and adjoining counties, and on State and Federal land. The recreational trail system shall be oriented to providing safe, off-street access from urban areas to regional recreation facilities of countywide importance.
>
> **OS-I.2:** The County shall develop recreational trails in County recreation areas.

City of Clovis

The jurisdiction of the City of Clovis General Plan and Herndon-Shepherd Specific Plan are bounded on the north by Shepherd Avenue. Chapter 6, Policy 3.2 of the General Plan identifies a park at the intersection of the Dry Creek Canal and Enterprise Canal extending to Shepherd Avenue, a bicycle route along Shepherd Avenue, and a multi-use bicycle trail along both Dry Creek and the Enterprise Canals south of Shepherd Avenue.

3.15.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to recreation is assessed below for each element of the Environmental Checklist, Appendix G of the CEQA Guidelines.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
B) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

A) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated?

Construction. The proposed project includes construction of a substation with associated power and distribution lines. The proposed extension of Enterprise Trail, north of Shepherd Avenue, is located within the alignment of the Shepherd West 21-kV distribution line. The trail would be located adjacent to Enterprise Canal and the proposed construction method for the distribution line involves underground crossing via either HDD or jack-and-bore beneath both Enterprise Canal and the proposed trail. Therefore, there would be no impact from construction of the proposed project on existing or proposed trails or recreational uses. Access to nearby recreational facilities including trails would not be impacted by construction. During construction of the distribution line beneath Enterprise Canal, there would be noise associated with the trenching and drilling of the distribution line. However, this noise would not result in physical deterioration of recreational facilities in the vicinity. The proposed park at the corner of Shepherd and Sunnyside Avenues would also be in the vicinity of the Shepherd West 21-kV distribution line. Because the distribution line would be underground, and construction of the line would be completed before the park is constructed, the distribution line would have no impact on recreational uses of the proposed park.

The Sunnyside South 21-kV reconductored distribution line would span the proposed extension of Enterprise Trail aerially, south of Shepherd Avenue. During construction,

impacts to recreation would be limited to noise associated with construction, and the minor visual impacts associated with the distribution line as discussed in Section 3.1. Construction would not interfere with nearby recreational uses of the existing segments of Enterprise Trail and Dry Creek Trail. Construction of the proposed distribution lines would have a less than significant effect on recreational uses of current or future recreational facilities.

Operation and Maintenance. Operation of the substation would be conducted remotely. Maintenance of the power and distribution lines would be conducted annually, and would have a similar impact on recreation as the effects described for construction if maintenance is required in the vicinity of an existing or proposed recreational facility. Operation and maintenance of the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities, and no substantial physical deterioration of these facilities would occur or be accelerated. Operation and maintenance of the proposed project would have a less than significant impact on existing or proposed parks or recreational facilities.

B) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

The proposed project includes construction of a substation with associated transmission and distribution lines. The project does not include recreational facilities or require the expansion of recreational facilities. Project activities would not increase the use of the recreational facilities in the area, require their expansion, or require construction of additional recreational facilities. The project would not have an impact on the environment associated with the construction or expansion of recreational facilities.

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3.16 TRANSPORTATION AND TRAFFIC

3.16.1 ENVIRONMENTAL SETTING

Levels of Service

Roadways and intersections are rated at various levels of service (LOSs). LOS is a measure of roadway operating conditions, ranging from LOS A, which represents the best range of operating conditions, to LOS F, which represents the worst. Basic definitions are presented in Table 3.16-1. LOS can be estimated based the on the road's traffic volume-to-road capacity (v/c) ratio or the average delay experienced by vehicles on the roadway.

Table 3.16-1: Level of Service Criteria for Roadways

LOS	v/c	Traffic Flow Characteristics
A	0.00-0.60	Free flow; insignificant delays
B	0.61-0.70	Stable operation; minimal delays
C	0.71-0.80	Stable operation; acceptable delays
D	0.81-0.90	Approaching unstable flow; queues develop rapidly (no excessive delays)
E	0.91-1.00	Unstable operation; significant delays
F	>1.00	Forced flow; jammed conditions

SOURCE: Transportation Research Board 2000

Regional Transportation

Highways

In Fresno County, State Route (SR) 99, SR 180, SR 41, and SR 168 are all major roadways maintained by the California Department of Transportation (Caltrans), providing local access to the Clovis area. These routes are all located 3 or more miles from the project area.

Local Access

Two-lane surface streets are present in the project area vicinity. Nees Avenue borders the project area on the south and E. Copper Avenue borders the proposed power line interconnection on the north. These are both major east-west roads. Nees Avenue is a three-lane divided roadway at Minnewawa Avenue, and becomes a two-lane undivided road east of Clovis Avenue. E. Copper Avenue is a two-lane undivided road. Figure 2.1-1 depicts roadways within the project area.

Clovis Avenue borders the project area on the west and Fowler Avenue borders the project area on the east. Both are two-lane, undivided roads. Smaller residential roads within the project area include Perrin Road, N. Sunnyside Avenue, and Behymer Avenue. Access along all of these roads is unrestricted.

The proposed substation would be located on the southwest corner of the intersection of Perrin and N. Sunnyside Avenues. The proposed power line would extend from E. Copper Avenue directly south through orchards and agricultural fields, and along N. Sunnyside Avenue to the proposed substation. N. Sunnyside Avenue extends north along the east side of the substation and ends at Behymer Avenue, north of the substation. The power line would cross Behymer Avenue at its intersection with N. Sunnyside Avenue and would extend south, along the western side of N. Sunnyside Avenue (Figure 2.1-1).

The proposed distribution lines would extend south from the substation along N. Sunnyside Avenue. At Shepherd Avenue one distribution line would extend west to Clovis Avenue and a second line would extend east to Fowler Avenue. The third distribution line would extend south along N. Sunnyside Avenue to Nees Avenue, replacing an existing distribution line.

Within the project area, Average Daily Traffic along Shepherd Avenue within the City of Clovis ranges from 5,900 vehicles moving eastbound east of Fowler to 1,100 vehicles moving eastbound west of Temperance. Accident counts obtained from the California Highway Patrol's data system indicated six collisions reported for 2009 and three collisions reported for 2010.

Average Daily Traffic along Shepherd Avenue within Fresno County and the project area ranges from 5,900 vehicles (between N. Sunnyside and Fowler) to 8,400 vehicles (between Willow and Minnewawa). Fresno County recorded a total of 71 collisions for the Willow to Temperance segment of Shepherd Avenue between 2006 and 2011. These data include collisions within the City of Clovis until 2010.

The Fresno County General Plan (2000) states that current conditions are at LOS C for all roadways within the County's rural areas and LOS D within the spheres of influence of the Cities of Fresno and Clovis. The substation and power line are wholly located within the County's rural areas. Portions of the Shepherd Avenue West and Sunnyside Avenue South distribution lines are located within the sphere of influence for the City of Clovis. Caltrans has established LOS thresholds for the state routes it maintains, including SR 99, SR 180, and SR 168. LOS data are not available for SR 41. Table 3.16-2 provides LOS thresholds for segments along these roadways that would be used to access the project vicinity. These roadways are identified on Figures 1.1-1 and 2.1-1.

Table 3.16-2: Roadway Characteristics for Local Access Roads in the Project Area

Roadway	Segment	LOS
SR 99[1]	Clovis Avenue to South Junction Road Route 99/41 Separation	C
SR 99[1]	South Junction Route 99/41 Separation to North Junction Route 99/41 Separation	D
SR 99[1]	North Junction Route 99/41 Separation to Ashlan Avenue	C
SR 99[1]	Ashlan Avenue to Madera County Line	B

Table 3.16-2 *(Continued)*: Roadway Characteristics for Local Access Roads in the Project Area

Roadway	Segment	LOS
SR 180[2]	Brawley Avenue to SR 41	N/A
SR 180[2]	SR 99 to SR 41	B
SR 180[2]	SR 41 to SR 168	D
SR 180[2]	SR 168 to Chestnut Avenue	B
SR 180[2]	Chestnut Avenue to Temperance Avenue	N/A
SR 180[2]	Temperance Avenue to Academy Avenue	D
SR 168[3]	SR 180 to Shaw Avenue	C
SR 168[3]	Shaw Avenue to Shepherd Avenue	B
SR 168[3]	Shepherd Avenue to Sample Road	D

Notes:

[1] 2003 data.

[2] 2004 data.

[3] 2005 data.

SOURCE: Caltrans 2010

Alternative Transportation

Bicycle Facilities

There are several existing and proposed Class I (trails) and Class II (on-street/bicycle lanes) bicycle facilities located within the vicinity of the project; however, there are currently no existing facilities within 1 mile of the proposed substation. Future on-street bicycle lane improvements are proposed along Shepherd Avenue and there are plans to extend bicycle trails along Enterprise Canal, north of Shepherd Avenue, as presented in the Clovis Bicycle Transportation Master Plan (Fehr and Peers 2011). Fresno County is also in the process of developing a Bicycle Transportation Master Plan (Fresno County 2011).

Transit and Rail Services

No commuter or freight rails are located near the project area.

Air Traffic

There are no aviation facilities within 2 miles of the project site. The nearest airports are a private airstrip located approximately 4 miles northwest of the project area, and the Fresno Yosemite International Airport located approximately 5 miles southwest of the project area.

3.16.2 REGULATORY SETTING

State

Federal

There are no federal laws or regulations for traffic or transportation that are applicable to the proposed project.

Caltrans

Caltrans has the discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles contained in Division 15 of the California Vehicle Code. Requests for such special permits require the completion of and application for a Transportation Permit.

Local

Fresno County

The Transportation and Circulation element of the Fresno County General Plan defines goals and policies for traffic within the County. The General Plan requires that the County plan and design roadways to meet LOS D on urban roadways within the spheres of influence of the Cities of Fresno and Clovis and LOS C on all other roadways in the County.

3.16.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to transportation and traffic is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
B) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other	☐	☒	☐	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
standards established by the county congestion management agency for designated roads or highways?				
C) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
D) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
E) Result in inadequate emergency access?	☐	☒	☐	☐
F) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

A) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Construction. Goals and policies for performance of the circulation system are defined in the Fresno County General Plan. The General Plan establishes an LOS standard of C for the unincorporated County and an LOS D for areas within the City of Clovis sphere of influence. Traffic associated with the proposed project would include approximately six to ten construction personnel commuting daily to the project area from surrounding areas during the 12-month construction period. During the peak of construction, no more than 45 workers would be expected to commute to the project area. Impacts from worker transit to the construction area would be temporary and are not likely to result in congestion. The proposed project would also result in an increase in truck trips to provide materials at the beginning of construction, and to import the approximately 8,500 cubic yards of fill materials required to raise the elevation of the substation site. Truck trips would peak during the transport of clean fill for substation construction. Estimated truck trips at the peak period would be approximately 40 to 45 round trips of heavy-duty trucks per day for approximately

two weeks. The peak delivery period would represent a significant increase over the current traffic load. APM Tran-1 and Tran-2 would be implemented to reduce the impact from the deliveries to the project site.

APM Tran-1: Deliveries will be made during normal construction hours.

APM Tran-2: PG&E shall prepare and implement a Traffic Management Plan or plans as required by, and in accordance with County requirements. The plan or plans shall be submitted to the CPUC when submitted to the County, and shall be distributed to all construction supervisors prior to commencement of construction activities.

Water trucks would be required to transport water for dust control to the project site from nearby areas. Due to the limited area of ground disturbance proposed by the project, the transport of water for dust control to the project site would involve one or two trucks and would not have a significant impact on traffic.

Within the project area, traffic along N. Sunnyside Avenue, Shepherd Avenue, and E. Copper Avenue may need to be temporarily reduced to one lane during construction to temporarily route traffic around work areas. N. Sunnyside Avenue provides access to a small residential area with very light traffic. As a result, temporary closures would cause insignificant traffic delays and congestion within the project area. E. Copper Avenue would be impacted for less than a week while the interconnection line is tied into the existing power line. With implementation of APM Tran-2, impacts to the LOS standard for area roadways during construction would be less than significant.

The project would not conflict with other traffic and circulation policies contained within the General Plan, including proposals for public transit and bicycle facilities. The project does not involve the creation of new area roadways and would not conflict with proposed bikeways or public transit facilities. Construction of the proposed project would have a less-than-significant conflict with traffic plans and policies.

Operation and Maintenance. During operation of the substation, power line, and distribution lines, only periodic maintenance visits to the site would be necessary. Operation and maintenance would not adversely impact traffic circulation. Operation and maintenance of the proposed project would not conflict with an applicable plan or policy establishing measures of effectiveness for the circulation system.

B) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

SR 99, SR 41, SR 180, and SR 168 are all major state routes that would provide access to the project area. Local access would be via surface streets, such as Shepherd, E. Copper, N. Sunnyside, Behymer, Minnewawa, Herndon, and Nees Avenues. The project has a relatively short timeframe for construction (12 months) and a maximum of 45 personnel would be

needed daily during construction. While the project would require approximately 40 to 45 daily truck trips during the peak period of material delivery, this impact would be temporary (approximately 2 weeks) and would be reduced with implementation of APM Tran-1 and Tran-2. The state routes and local streets would be able to accommodate the increased travel during construction and maintenance without modifications or constraints. The project traffic would not exceed an established LOS standard. Impacts to LOS would be less than significant.

C) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Construction. The airport closest to the project area is 4 miles northwest of the project area. Project construction would not affect air patterns or impact a Federal Aviation Administration (FAA)-designated air safety zone around an existing airport. The project would not be located within an FAA-designated air safety-zone. The project would have no impact on air traffic patterns.

Operation and Maintenance. Operation and maintenance activities would not require the use of a helicopter or any other aircraft. There would be no impacts to air traffic patterns.

D) Would the project substantially increase hazards due to a design feature or incompatible uses?

Construction. A Traffic Management Plan(s) would be implemented in accordance with APM Tran-1 to reduce the effects of lane closures and avoid causing traffic hazards. With implementation of the Traffic Management Plan, construction of the proposed project would not increase traffic hazards. No access roads would be constructed for the project, and the proposed project would not include design changes to area roadways. The project would not impact area roadway design or uses and would have a less-than-significant impact on traffic hazards.

Operation and Maintenance. No new roads or changes in existing roadways would be involved in the proposed project. Operation and maintenance of the proposed project would not impact area roadway design or uses. Impacts would be less than significant.

E) Would the project result in inadequate emergency access?

Roadway access may be reduced while traffic is routed around areas of active construction. In order to provide adequate emergency access during construction, PG&E would notify emergency services and transit/bus authorities concerning the project and possible intersection closures or detours in accordance with Mitigation Measure Hazards-3 (Section 3.8). Lane closures would be temporary and limited to brief periods of localized construction. Full road closures are not proposed as a part of the project. Operation and maintenance activities would not create any closures or detours resulting in inadequate emergency access. Impacts would be less than significant.

F) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The County General Plan identifies policies for public transit and bicycle facilities. No existing or proposed bike paths, sidewalks, commuter rails, freight rails, or airports would be affected by the proposed project. Construction and operation and maintenance of the project would not conflict with any alternative transportation policies, plans, or programs. No impacts would occur.

3.17 UTILITIES AND SERVICE SYSTEMS

3.17.1 ENVIRONMENTAL SETTING

Utilities

Water Supply

Water in the project area is supplied by the City of Clovis both though groundwater wells and the Clovis Surface Water Treatment Plant, which converts raw water from Enterprise Canal into a potable water source. The treatment plant, in addition to the City's groundwater wells, have the capacity to deliver up to three times the amount of the City's daily needs (City of Clovis 2011).

Electricity and Natural Gas

Electricity and gas service in Fresno County is provided by PG&E.

Service System

Stormwater

Big Dry Creek Reservoir, located approximately 2 miles due east of the project area, is a major flood control reservoir managed by the Fresno Metropolitan Flood Control District. The reservoir has a capacity of 30,200 acre-feet of water (FMFCD 2010). The Fresno Metropolitan Flood Control District also manages a regional flood retention/infiltration basin located due north of the proposed substation and along the proposed power line alignment.

Solid Waste Disposal

There are two active solid waste landfills in Fresno County. The landfill closest to the proposed project site is the City of Clovis Landfill, located approximately 3.5 miles north of the project area. The City of Clovis Landfill has an estimated remaining capacity of 2.1 million cubic yards, and does not accept treated wood waste. However, the second active solid waste landfill in Fresno County, the American Avenue Disposal Site, does accept treated wood waste (CalRecycle 2011a). The American Avenue Disposal Site is located approximately 28 miles southwest of the project area and has an estimated remaining capacity of 29 million cubic yards (CalRecycle 2011b).

3.17.2 REGULATORY SETTING

Federal

There are no federal laws or regulations related to utilities and service systems that are applicable to the proposed Project.

State

Solid Waste

The California Integrated Waste Management Board, under the umbrella of the California Environmental Protection Agency, is the state agency designated to oversee, manage, and track California's solid waste generated each year. The Board develops laws and regulations

to control and manage waste, working jointly with local governments to implement regulations and fund programs.

Wastewater

Wastewater is regulated by several state/regional agencies, including the State Water Resources Control Board, the California Department of Health Services, the California Department of Pesticide Regulation, the California Department of Toxic Substances, the California Department of Water Resources, and the Central Valley Regional Water Quality Control Board.

Water Supply

Senate Bill (SB) 610 requires preparation of a Water Supply Assessment for any development whose approval is subject to CEQA and which meets the definition of "project" under Water Code section 10913 (i.e., a residential development project of more than 500 dwelling units or other types of development) (e.g., commercial buildings, industrial parks, and hotels) expected to use a comparable amount of water.

Local

Fresno County

Fresno County policies for Utilities and Service Systems are identified in the General Plan (2000) and include:

> **PF-A.5:** The County shall encourage the placement of irrigation canals and utility lines underground as urban residential, commercial, and industrial development takes place.
>
> **PF-E.5:** The County shall only approve land use-related projects that will not render inoperative any existing canal, encroach upon natural channels, and/or restrict natural channels in such a way as to increase potential flooding damage.

3.17.3 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts to utilities and service systems is assessed below for each element of the Environmental Checklist, Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
B) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
facilities, the construction of which could cause significant environmental effects?				
C) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
D) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
E) Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
F) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
G) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

A) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Construction. Minimal amounts of wastewater would be generated during construction. Wastewater generated would be limited to portable sanitary facilities and would be removed by the portable sanitary waste facility operators. The addition of the project's minimal amounts of wastewater to existing wastewater treatment plants would not cause any wastewater treatment facility to exceed wastewater treatment requirements of the RWQCB. The project would have a less than significant impact on wastewater treatment requirements.

Operation and Maintenance. Operation of the facility would be automated and no permanent waste facilities would be located at the substation; therefore, the project would have no impact during operation.

B) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Construction. Water would primarily be used for dust control and would be transported in water trucks from nearby off-site sources. The use of water for dust control would be limited to the period of construction. Due to the limited footprint of the areas of ground disturbance, the amount of water used for dust control would be minimal and would be limited to one to two trucks per day carrying 3,000 gallons of water. Wastewater generated from an average of 6 to 10 workers per day during the 12 month period of project construction would not exceed treatment capacity at any regional facilities. Project construction would not result, either directly or indirectly, in new or expanded development requiring new municipal drainage or stormwater facilities. Impacts would be less than significant.

Operation and Maintenance. No water or wastewater facilities are needed for the operation of the facility, therefore, no new or expanded facilities would be required. No impact.

C) Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

A stormwater detention basin would be constructed within the substation area. The basin would be engineered to acceptable industry standards as well as the Fresno County basin criteria and design standards as specified in APM WQ-3 (Section 3.9). While a portion of the power line would be constructed within the regional flood retention/infiltration basin located north of the substation site, the power line would not change the capacity or function of the retention/infiltration basin. The proposed project would also require construction near Enterprise Canal and Dry Creek; however, the project would not encroach upon either canal and would have no effect on potential flooding from these canals. No expansion of existing stormwater drainage facilities would be required as a result of the proposed project, and thus no impacts would result.

D) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Construction. PG&E anticipates that water would be purchased from the City of Clovis through a water meter. An estimated one or two truckloads of water per day are required for dust control and other watering needs. Each load is estimated to be approximately 3,000 gallons. Water for dust control would be required during ground disturbing activities, which are estimated to last approximately 12 months. Construction activities would not increase the demand for public water supplies because sufficient sources of water would be available from the City of Clovis. No impacts would occur.

Operation and Maintenance. Operation of the facility would require seasonal irrigation for the almond trees (or suitable replacement vegetation) at the substation. Water for irrigation would be supplied either through a groundwater well, constructed within the substation, or

from the adjacent orchard. Because this vegetation is currently irrigated under existing conditions, there would be no impact through the continued maintenance and irrigation of the vegetation.

E) Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Construction. Minimal amounts of wastewater would be generated during construction. Wastewater generated would be limited to the waste from portable sanitary facilities, which would be transported to the nearest wastewater treatment plant. The addition of the project's minimal amounts of wastewater to existing wastewater treatment plants would create a less than significant impact to the wastewater treatment provider.

Operation and Maintenance. Operation of the facility would be automated and no permanent wastewater facilities would be located at the substation; therefore, the project would have no impact during operation.

F) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Waste generated by project construction would consist of scrap lumber and old wood poles. Approximately 80 cubic yards of solid waste would be generated during construction. The landfills in the project area have sufficient remaining capacity to accept the project waste.

While there is the potential for additional waste to be generated during operation and maintenance of the proposed facilities, this waste would be limited to the replacement of equipment and would be infrequent. The project would have a less than significant impact on existing landfill capacity.

G) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Waste generated from construction, operation, or maintenance activities would be disposed of in accordance with all applicable federal, state, and local statutes and regulations related to solid waste. No impacts would occur.

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3.18 MANDATORY FINDINGS OF SIGNIFICANCE

3.18.1 ENVIRONMENTAL IMPACTS AND ASSESSMENT

The significance of project impacts is assessed below for each element of the Environmental Checklist, Appendix G, of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
B) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
C) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

A) Would the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Construction. As described in Section 3.5, potential impacts to fish or wildlife habitat population levels, or plant or animal communities, would be less than significant with implementation of PG&E's proposed measures (APMs), AMMs, and additional mitigation measures identified in Section 3.5.

Construction of the project would not substantially degrade the quality of the environment or reduce the habitat of a fish or wildlife species. Impacts to wetlands and water resources would be avoided by the project through implementation of APM Bio-19 and APM WQ-2. Temporary impacts to grasslands would be less than 2 acres, and impacts would take place over a period of 12 months, with no more than 1 acre being subject to construction disturbance at any one time. Permanent impacts to grassland habitat would be less than 0.1 acre. Grassland areas subject to temporary impact would be restored through implementation of AMM 10, Mitigation Measure Air-1 and APM Geo-1. The substation would be constructed within an almond orchard, which does not support fish or wildlife habitat. The distribution lines would be constructed within roadside areas that do not support fish or wildlife habitat. The project would have a less than significant impact on wildlife habitat and environmental quality.

The proposed project would not cause population numbers of any special status species to drop below self-sustaining levels or threaten to eliminate a plant or animal community. There are eleven special status species with the potential to occur within the project area. With the implementation of Mitigation Measures Biology-1 through Biology-8, defined in Section 3.5, impacts to special status species would be less than significant. The project would avoid wetlands and less than 0.1 acre of grassland habitat would be permanently lost after project completion. This loss of grassland habitat is insignificant due to the presence of grassland areas surrounding the project. As a result, the project would not cause population numbers of any special status species to drop below self-sustaining levels or threaten to eliminate a plant or animal community.

Construction of the project would not reduce the number or restrict the range of a rare plant or animal. Population numbers for rare plants and animals would not be reduced through implementation of the APMs, AMMs, and mitigation measures defined in Section 3.5. These measures require pre-construction surveys for rare plant and animal species and the exclusion of work activities around these species. During and following construction the power line alignment would remain permeable. Project construction would be conducted over a 12 month period. During the period of construction, species migration would not be significantly affected because the construction area would be limited. Each pole would temporarily impact an area within a 50 foot radius of the pole. Species migration could continue around the area of impact during construction. Therefore, the project would not have a significant impact on the range of a rare plant of animal.

There are no known examples of major California history or prehistory in the project area. Project construction would include ground-disturbing activities that could potentially adversely affect the integrity of previously undiscovered cultural deposits, resulting in the loss of cultural and/or historical information and the alteration of the site setting of a

historical resource. The applicant would minimize or avoid impacts to any potentially significant prehistoric and historic resources that might be discovered during construction by implementing standard protocols as specified in APM Cult-3 and Mitigation Measure Cultural-1. If avoidance of the resource is not possible, then the resource would be evaluated for CRHR or NRHP eligibility, and if eligible, appropriate treatment measures would be implemented to mitigate the adverse effect. Project operation following completion of construction would have no impacts on cultural resources. Impacts to cultural resources would be less than significant with implementation of appropriate APMs and mitigation measures.

B) Would the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Related Projects

Other closely related past, present, and reasonably foreseeable probable future projects are listed in Table 3.18-1 below. The locations of these projects are identified in Figure 3.18-1.

Table 3.18-1: Cumulative Projects in the Project Vicinity

	Project Name	Project Components	Location	Status
1	Clovis Community Medical Center Healthcare Campus Expansion Project	The 10-year expansion plan includes a new five-story bed tower, substantial expansion of the existing hospital, expansion of the central plant, a new administrative office building, a 3 ½-story parking structure, three new professional healthcare buildings, and relocation of the existing helistop. The long-range master plan includes another five-story bed tower, additional expansion of the emergency and imaging departments, a potential future parking structure, and four future professional healthcare buildings. The total square footage of the medical center upon implementation of the long-range master plan will be approximately 1,136,000 square feet.	The project site is located approximately 2 miles southeast of the proposed project area on 137 acres, located on the north side of Herndon Avenue, east and west of Temperance Avenue.	Construction started early 2010 and is expected to be completed by 2020.

Table 3.18-1 *(Continued)*: Cumulative Projects in the Project Vicinity

	Project Name	Project Components	Location	Status
2	Friant Ranch Project	The project includes development of a master planned community adjacent to the existing community of Friant. The Friant Ranch Specific Plan includes development of a mixed-use community with 2,683 single-family age-restricted units, 83 multiple-family age-restricted units, 180 non-age-restricted multi-family units, and 250,000 square feet of commercial space within a Village Core that also provides for up to 50 residential units. The Friant Ranch Specific Plan incorporates two active adult recreation centers, trails and parkways, parks and public open space areas, landscaped slopes, and conservation open space areas.	The project site is located approximately 7 miles north of the proposed project area in the unincorporated community of Friant.	The Final EIR and project was approved. Construction is expected to start mid- to late 2012.
3	County Service Area 51	The proposed project involves installation of a water distribution system that will provide service to 432 properties in County Service Area 51. The proposed system will connect to the City of Clovis at E. Shepherd Avenue and N. Fowler Avenue. The proposed project requires various agreements, including a water procurement agreement between the County of Fresno and Fresno Irrigation District, a water service agreement between the City of Clovis and the County of Fresno, and an agreement between the City of Clovis and the City of Fresno for the connection between the two cities.	The project site is located approximately 2.75 miles north of the City of Clovis, in unincorporated Fresno County.	Construction has yet to be approved by the residents but a vote is anticipated in May 2012. Fresno County intends to start the public process in the spring of 2012 (Scholars 2012).
4	Clovis Pet Adoption Center	The proposed project includes the construction and operation of a municipal animal services and pet adoption building at Temperance and Sierra Avenues in the southern end of the planned Sierra Meadows Park.	The project would be located at the corner of Temperance and Sierra Avenues. The project would be approximately 2 miles southwest	The IS/MND was prepared and a NOD was signed in February 2011. The project was approved by the City Council in September 2011. It

Table 3.18-1 *(Continued)*: Cumulative Projects in the Project Vicinity

	Project Name	Project Components	Location	Status
			of the proposed Shepherd Substation project area.	is uncertain when funding will become available for construction (Uc 2012).
5	Clovis Herndon Shopping Center	The project involves the development of approximately 491,904 square feet of retail space within a 44 acre area.	The project would be constructed South of Highway 168, west of Sunnyside Avenue, and approximately 1 mile from the proposed Shepherd Substation project area.	The EIR was approved in 2009. Construction of a Walmart at this site began in 2011. Construction will continue in 2012 and potentially 2013 (Uc 2012).
6	Clovis Research and Technology Park Expansion	The project includes the approval and development of a 153 acre research and technology park that would serve as an expansion to the existing Clovis Research and Technology Park (R&T Park). The existing R&T Park is approximately 180 acres. The two parks combined would provide approximately 333 acres of research and technology land use for the City.	The project site is located generally east of Temperance Avenue, south of Nees Avenue, north of State Route 168. The project would be located approximately 1 mile east of the proposed Shepherd Substation project area.	The Final EIR was approved in 2009. Phase I and II of the project have been approved by the City of Clovis (Uc 2012).
7	Jesse Morrow Mine and Environmental Reclamation Project	The proposed project includes operation of an aggregate mining, processing, and distribution facility on the south side of Jesse Morrow Mountain, in Fresno County, California. The proposal includes recycling, ready-mix, and asphalt batch plants, uses ancillary to aggregate mining and processing. Approximately 824 acres will be developed for the Project (400 acres for mining and 40 acres for the processing facilities).	The project is located approximately 8 miles east of the City of Sanger and approximately 15 miles southeast of the proposed Shepherd Substation project area.	The Final EIR was approved in January 2011. The project is scheduled to go to the County Planning Commission in February 2012. Construction would likely begin in 2014 (Daley 2012).

Table 3.18-1 *(Continued)*: Cumulative Projects in the Project Vicinity

	Project Name	Project Components	Location	Status
8	New Park and Enterprise Trail Extension	The City of Clovis is proposing a park extending to the north and south of Shepherd Avenue at the intersection of Shepherd and Sunnyside avenues, approximately 0.25 miles south of the substation site. In addition, Fresno County has an extension of the Enterprise Trail planned from the proposed park, trending north along the Enterprise Canal. This trail will also be located approximately 0.25 miles south of the substation site.	The proposed trail extension is located within the project area and would be within the alignment for Shepherd West 21 kV distribution line.	The Bicycle Master Plan was adopted on May 16, 2011 (Fehr & Peers 2011). While the proposed trail extension is identified within the Bicycle Master Plan, it is uncertain when funding will become available for construction of the trail extension.

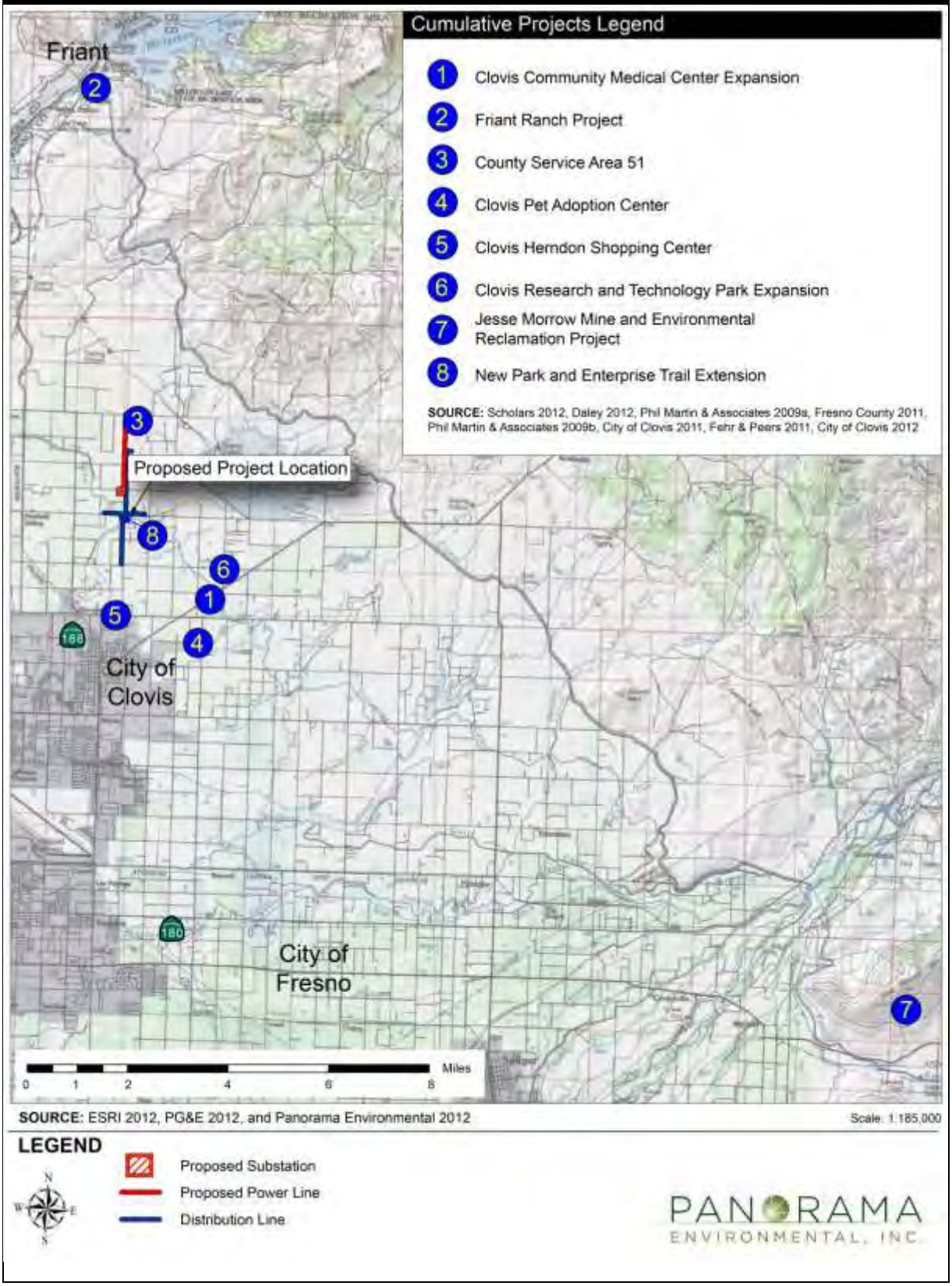
SOURCES: Scholars 2012; Daley 2012; Phil Martin & Associates 2009a; Benchmark Resources 2011; Phil Martin & Associates 2009b; City of Clovis 2011; Fehr & Peers 2011, UC 2012

Cumulative Impacts

Aesthetics

Construction of the proposed project would result in temporary visual changes to the area from the presence of construction activities, equipment, and personnel. Implementation of the proposed project would result in new pole structures and minor to moderate long-term changes to the visual quality and contrast of the area from the presence of the substation facility. With the exception of the bicycle path extension at Enterprise Canal, none of the identified cumulative projects would be located in the same visual setting as the proposed project. Because the proposed distribution line at Enterprise Canal would be underground, and construction of the proposed project would occur prior to construction of the proposed bicycle trail extension at Enterprise Canal, there would be no cumulative impact to aesthetics as a result of the projects. Temporary and permanent project-related impacts to aesthetics would be reduced to less than significant levels with the implementation of the mitigation measures defined in Section 3.1 Aesthetics. Cumulative aesthetic impacts would not be significant.

Figure 3.18-1: Cumulative Projects in the Project Vicinity



Agricultural Resources

Construction activities for the proposed project would impact existing agricultural land use. The project would permanently convert approximately 5 acres of Prime Farmland within Fresno County to non-agricultural use. The cumulative projects in Table 3.18-1 would not impact the designated farmland and with the exception of the Clovis Research and Technology Park, the cumulative projects would not take agricultural land out of production. There would be a small loss of land currently in agricultural production as a result of the Clovis Research and Technology Park Expansion; however, this land is not designated Farmland (Phil Martin & Associates 2009). The loss of agricultural land associated with construction and operation of the proposed project would not contribute to a significant loss of Farmland, even when considering the cumulative impacts of other reasonably foreseeable projects.

Air Quality

Air emissions during construction of the proposed project would be less than significant based on the significance thresholds defined by the SJVAPCD (refer to Section 3.3).

The construction schedules for cumulative projects 1, 2, 5, and 6 (Table 3.18-1) could overlap with construction of the proposed project. Each of the cumulative projects would be required to adhere to applicable regulations, and would be required to implement mitigation measures to reduce air emissions during construction. Measures would likely include fugitive dust control, use of low-emission fuels, and installation of filters on heavy equipment. Any potential adverse cumulative air quality impacts would be short-term, (lasting only the duration of construction) and would not be cumulatively considerable; therefore, cumulative air quality impacts would be less than significant.

Impacts to air quality during operation would be associated with maintenance and repair activities and would be substantially less than the SJVAPCD significance thresholds; therefore, no significant contribution to cumulative impacts would occur from operation of the project.

Greenhouse Gases

Construction of the project would result in emission of GHGs from on-site construction equipment and off-site worker trips. The most common GHGs associated with fuel combustion are CO_2, CH_4, and N_2O. Impacts from the proposed project would be less than significant because GHG emissions for the project would be well below existing quantitative significance thresholds.

None of the cumulative projects identified in Table 3.18-1 would create a new stationary source of GHG emissions. GHG emissions would primarily be associated with project construction. Construction schedules for cumulative projects 1, 2, 5, and 6 (Table 3.18-1) could overlap with construction of the proposed project. Construction of the cumulative projects would create similar GHG emissions as the proposed project from construction vehicles and equipment. The cumulative projects would be subject to evaluation of potential

impacts from GHG emissions and, where appropriate, to the implementation of BMPs and APMs. Any potential adverse cumulative GHG impacts would be short-term and not cumulatively considerable; therefore, project GHG emissions would have a less than significant cumulative impact.

Impacts from GHGs during operation would be associated with maintenance and repair activities, along with the potential release of SF_6. The proposed substation would comply with regulations regarding SF_6 containment. These impacts would be less than significant; therefore, the project's contribution to cumulative impacts would be minimal and would result in a less than significant cumulative impact.

Biological Resources

The proposed project would not significantly contribute to cumulative impacts on biological resources within the vicinity of the project area. The project construction would avoid sensitive habitats, including seasonal wetlands and water bodies. The project footprint would be very small and would be dispersed along the power line. A large portion of the project disturbance would be the conversion of an almond orchard, which itself is a highly disturbed and managed environment that offers modest value to native wildlife species, and no habitat for rare or endangered plant or animal species. The distribution line alignments include highly disturbed habitat areas with limited vegetation, which are directly adjacent to County roadways. Implementation of the PG&E HCP and appropriate AMMs, APMs, and mitigation measures would further reduce cumulatively significant impacts to biological resources.

Cultural Resources

Impacts to all known cultural resources by the proposed project would be less than significant (Section 3.6). With the implementation of mitigation measures, neither short-term construction activities nor operation and maintenance activities would affect cultural resources. Workers would be trained to identify potential cultural resources, and to halt and redirect construction activities in the event that previously unidentified cultural resources are discovered. No cultural resources would be affected during project construction or operation, and no contribution to cumulative impacts would occur.

Geology and Soils

Anticipated impacts to geology and soils would be less than significant. The project would not increase potential risks associated with a seismic event or impacts from collapsible or expansive soils. Short-term construction impacts to soils, including unstable soils, have the potential to occur; however, implementation of APM Geo/WQ-1 described in Section 3.7 would reduce impacts to a less than significant level.

The construction schedules for cumulative projects 1, 2, 5 and 6 (Table 3.18-1) could overlap with construction of the proposed project. Impacts to local soils could result from erosion during construction and implementation of the proposed project. Project 8, the New Park and Enterprise Trail Extension, is the only cumulative project that would be located within

the proposed project area. However, the schedule for construction timing of this project is unknown, as funding would first need to be secured to complete this extension. The impacts from the Shepherd Substation Project would not cumulatively combine with similar impacts from other projects due to the distance between projects and the limited timeframe for construction (12 months). Potential cumulative impacts to geology and soils would be less than significant.

Hazards and Hazardous Materials

The use of hazardous materials for the project would be minimal during construction and operation. Hazardous materials would be stored and used in compliance with applicable regulations. Impacts from routine use, transportation, disposal, and accidental spillage of hazardous materials would be less than significant.

Hazards or hazardous materials from the proposed project would be contained, and impacts would be mitigated before impacts could potentially combine with those of other projects to create a significant cumulative impact. Nearby projects would be required to comply with federal, state, and local safety regulations to minimize risk to the surrounding public. Due to the distance between projects and the low risk of hazards or hazardous materials impacts presented by the proposed project, the potential for cumulative impacts would be less than significant.

Hydrology and Water Quality

The proposed project has the potential to cause temporary impacts to nearby waterways and water quality during construction. These impacts could include erosion, increased runoff and sedimentation, or the accidental release of hazardous materials. These temporary impacts would be less than significant with the implementation of the APMs and mitigation measures discussed in Section 3.9.

The construction schedules for cumulative projects 1, 2, 5 and 6 (Table 3.18-1) could overlap with construction of the proposed project. Project 8, the New Park and Enterprise Trail Extension, would be located within the proposed project area. However, the schedule for construction timing of this project is unknown as funding would need to be secured to complete this extension. Each project would be required to adhere to applicable regulations including provisions of the Construction Stormwater Permit, and would be required to implement mitigation measures to further reduce hydrology and water quality impacts during construction. The project's cumulative hydrology and water quality impacts would therefore be less than significant.

Land Use

The proposed project would have no impact on established communities, land use plans, or applicable habitat conservation or natural community conservation plans. The project would have a less than significant impact on applicable land use policies and regulations; therefore, the project would not contribute to cumulative impacts on land use.

Mineral Resources

No commercial mineral resources are known to exist within the project area, and the proposed project would not result in the loss of availability of a known mineral resource. Therefore, the project would not contribute to potential cumulative impacts that may result in the loss of mineral resources.

Noise

The proposed project would not contribute to a long-term cumulative impact on ambient noise levels in the project area. Noise from operation of the substation, power line and distribution lines would be minimal, and would not exceed background noise levels. Noise from construction activities would be short-term and limited to specified hours. Impacts from noise to nearby sensitive receptors would be less than significant.

The construction schedules for cumulative projects 1, 2, 5, and 6 (Table 3.18-1) could overlap with construction of the proposed project. However, due to the distance between these projects, the noise impacts of this project would not combine with those of other projects that would be constructed at the same time. The noise generated from construction of the proposed project would dissipate over the intervening distance. Potential cumulative impacts from noise would be less than significant.

Population and Housing

The proposed project would not result in impacts to population and housing. Construction workers would be drawn from existing local PG&E staff, which is anticipated to be sufficient to complete the project. The project would not displace any existing housing or people. The proposed project would not contribute to cumulative impacts because it would have no impacts on population and housing.

Public Services

The proposed project would not result in significant impacts to public services. The proposed project would not require the cessation or interruption of fire or police protection services, and would not interfere with the use of schools or other public facilities. Impacts would be less than significant and would not contribute to a cumulatively significant impact on the public services in the project area.

Recreation

The proposed project would have a less than significant effect on recreation. Construction of the distribution lines within the vicinity of Dry Creek and Enterprise Trails would avoid the recreational trails and would not cause a change in recreational use of the area. Because the distribution line would be constructed outside of the recreational area, the project would not cause a change in recreational uses of the area. The project would not interfere with implementation of the proposed bicycle path along Enterprise Canal. The proposed bicycle path could be constructed as planned. The project would not contribute to cumulative effects to recreation.

Transportation and Traffic

Construction of the proposed project would have the potential for temporary impacts to traffic volumes, LOS standards, road hazards, and emergency access. These impacts would be temporary and less than significant. Given the location of the project area in relation to other development projects in the region, the transportation network is sufficient to accommodate construction traffic and avoid significant impacts to any one area. Potential cumulative traffic impacts would be less than significant based on the location of the proposed project in relation to other reasonably foreseeable projects, and the relatively small expected increase and short duration of the increase in traffic volume due to the proposed project.

Utilities and Service Systems

Implementation of other development projects could result in potential cumulative impacts to utilities, particularly local water supplies and wastewater facilities. In contrast, construction of the proposed project would temporarily require a minimal water supply and generate minimal amounts of wastewater. Construction would require the disposal of a less than significant amount of all types of waste. No expanded facilities or services would be needed for the project, and use and disposal of all water and waste products would comply with all applicable laws and regulations. Cumulative project impacts on utilities and service systems during project construction would therefore be less than significant.

Impacts to utilities and service systems during operation and maintenance would be minimal. The project would be operated remotely, and maintenance would involve yearly inspection and as needed repairs, neither of which would increase demand for utilities or services; therefore, no contribution to cumulative impacts would occur.

C) Would the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

The project would not adversely affect human beings either directly or indirectly. Environmental parameters with potential to impact human health would include impacts from changes to air quality and existing hazards and hazardous materials use. Potential impacts from hazards and hazardous materials or air quality, and other environmental resources that could affect human beings, would be reduced to a less than significant level with the implementation of the mitigation measures identified in this document.

4 MITIGATION MONITORING PLAN

4.1 MITIGATION MONITORING IMPLEMENTATION

PG&E proposes to construct and operate the Shepherd Substation. An Initial Study (IS) was prepared to assess the project's potential environmental effects; the analysis and conclusions were based on information in the PEA, project site visits, responses to data requests, and supplemental research. The majority of the project's impacts would occur during project construction. PG&E proposed APMs to reduce potentially significant adverse impacts related to project construction and operation. PG&E also proposed application of the AMMs included in the San Joaquin Valley HCP.

The purpose of this Mitigation Monitoring Plan (MMP) is to ensure effective implementation of each APM, AMM, and mitigation measure identified in the MND and imposed by the CPUC as a part of the project approval. The mitigation measures, and many of the APMs and AMMs, are required to avoid significant environmental effects of the proposed action.

This MMP is presented below in Table 4.1-1 and includes:

- APMs, AMMs, and mitigation measures that PG&E must implement as part of the project
- Monitoring requirements
- Timing of implementation for each measure

The CPUC will use this MMP as the framework for a Mitigation Monitoring, Compliance, and Reporting Plan (MMCRP). The MMCRP will be created by the CPUC to formalize protocols to be followed by CPUC third-party environmental monitors (CPUC EMs) and PG&E project staff prior to and during construction. The MMCRP will include, but will not be limited to, the following topics:

- Agency Jurisdiction
- Roles and Responsibilities
- Communication Protocols
- Compliance Verification and Reporting
- Project Changes

A final version of the MMCRP will be completed in consultation with PG&E. Typical protocols and procedures for dispute resolution are provided below.

4.1.1 DISPUTE RESOLUTION

It is expected that the MMP will reduce or eliminate many potential disputes; however, even with the best preparation, disputes may occur.

Issues should be first addressed at the regular progress meetings at the field level informally between the CPUC EMs and PG&E's EMs. Questions may be raised to the PG&E Project

Environmental Manager or PG&E Project Construction Manager. Should the issue persist or not be resolved at these levels, the following procedures will be used:

- **Step 1.** Disputes unresolved in the field and complaints (including those from the public) should be directed to the CPUC Project Manager for resolution. The Project Manager will attempt to resolve the dispute informally. Should this informal process fail, the CPUC Project Manager will inform PG&E prior to initiating Step 2.
- **Step 2.** Should the informal process in the field (Step 1) fail, the CPUC Project Manager may issue a formal letter requiring corrective actions to address the unresolved or persistent deviations from the Proposed Project or adopted MMP.
- **Step 3.** If a dispute or complaint regarding implementation or evaluation of the Program or mitigation measures cannot be resolved informally or through a letter request, any affected participant in the dispute or complaint may file a written "notice of dispute" with the CPUC's Executive Director. This notice should be filed in order to resolve the dispute in a timely manner, with copies concurrently served on other affected participants. Within 10 days of receipt, the Executive Director or designee(s) shall meet or confer with the filer and other affected participants to resolve the dispute. The Executive Director shall issue an Executive Resolution describing his/her decision, and serve it to the filer and other affected participants.
- **Step 4.** If one or more of the affected parties is not satisfied with the decision as described in the Resolution, such party(ies) may appeal it to the Commission via a procedure to be specified by the Commission.
- Parties may also seek review by the CPUC through existing procedures specified in the CPUC Rules of Practice and Procedure for formal and expedited dispute resolution, although a good faith effort should first be made to use the foregoing procedure.

Table 4.1-1: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
Aesthetics		
APM Visual-1: Construct a prefabricated concrete wall on the north and east sides of the substation and replanting as necessary to leave three rows of trees on the east and north sides of the substation to minimize contrast with the existing visual character of the area. As almond trees die, or are impacted by road widening along Sunnyside and Perrin Avenues, the trees will be replaced with compatible vegetation.	Confirm the construction of the wall and three rows of trees.	During construction and facility operation
APM Visual-2: Security lighting will consist of sodium vapor lamps and all exterior lighting will use non-glare light bulbs, designed and positioned to minimize casting light and/or glare to off-site locations. Security lighting will be designed at the substation in a way such that all lighting is directed inwards. In addition, all exterior lighting will be hooded to reduce light pollution.	Confirm that sodium vapor lamps and non-glare bulbs were installed and security lighting is hooded.	Following construction of the security lighting
Mitigation Measure Aesthetics-1. The final color of the pre-fabricated concrete walls shall be chosen in consultation with the Fresno County.	N/A	Prior to construction PG&E shall consult with Fresno County
Mitigation Measure Aesthetics-2. To reduce the contrast and presence of the substation and related facilities: • Non-reflective finishes shall be used on fencing and all facilities taller than 8 feet. • Entrance road solid gates shall be a natural wood color.	Visually confirm that finishes are non-reflective and that gates are a natural wood color.	During construction
Mitigation Measure Aesthetics-3. To reduce the contrast and presence of the power line and circuits, PG&E shall use non-specular conductors and galvanized steel TSPs.	Visually confirm that non-specular conductors are being used.	Prior to and during construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
Air Quality		
APM Air-1: All disturbed areas that are not being actively used for construction purposes will be stabilized of dust emissions using water or covered with a tarp or other suitable covering.	Visually inspect inactive disturbed areas to confirm stabilization measures have been applied.	During construction
APM Air-2: All unpaved roads utilized for accessing the project will be stabilized by spraying with water.	Visually inspect stabilization of unpaved roads.	During construction
APM Air-3: All ground-disturbing activities will be effectively controlled of fugitive dust emissions by application of water or by presoaking.	Visually inspect to verify control of fugitive dust emissions.	During construction
APM Air-4: When materials are transported off site, all material will be covered or wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained.	Visually inspect that material transportation complies with the measure.	During construction
APM Air-5: All operations will remove the accumulation of mud or dirt from adjacent public streets at the end of each workday.	Visual inspection to verify streets are cleaned of mud and dirt.	During construction
APM Air-6: Trackout (i.e., dirt and mud transported on vehicle tires and transferred to the pavement upon existing the work area) will be removed at the end of each workday when it extends 50 or more feet from the site.	Visually inspect roadways around project site for trackout	During construction
APM Air-7: Speeds of vehicles and equipment operating on unpaved surfaces will be limited to no more than 15 miles per hour, and as required in the project dust control permit.	Verify that vehicles and equipment maintain speeds below 15 miles per hour.	During construction
APM Air-8: Dust suppressants or watering will be used to ensure that dust is	Visually inspect that dust is	During construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
controlled to less than 20 percent opacity when winds exceed 20 miles per hour.	controlled to less than 20 percent opacity.	
Mitigation Measure Air-1: All disturbed surface areas over 1,000 square feet must achieve final stabilization upon the completion of project construction. Final stabilization would be achieved through appropriate means that would provide long-term sediment and dust control. PG&E will be responsible for monitoring and maintaining all disturbed areas until final stabilization is achieved.	Visually inspect for permanent stabilization.	Post construction
Greenhouse Gases		
APM GHG-1/Noise-5: When not performing construction, operation, or maintenance activities, vehicles will be shut off rather than left idling unnecessarily. Some equipment or vehicles may require extended start-up times. For such equipment, a common sense approach will be used to determine idling times. Normal idling will not exceed five minutes, as required by California law.	Verify that vehicles are not left idling more than 5 minutes	During construction
APM GHG-2: Diesel fueled off-road construction equipment with 50 horsepower or greater engines shall at a minimum meet U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) Tier 1 engine standards. Compliance records will be kept by the general construction contractor. This APM is not applicable to equipment permitted by the local air quality district or certified through CARB's Statewide Portable Equipment Registration Program, or single specialized equipment that will be used for less than five total days.	Verify that compliance records are kept by general contractor.	During construction
APM GHG-3: PG&E will incorporate the following measures into its construction plans to further reduce greenhouse gas emissions: • Encourage construction workers to carpool by establishing carpooling to construction sites where feasible to do so. • Encourage recycling of construction waste. • Minimize welding and cutting by using compression of mechanical	N/A	During construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
applications where practical and within standards.		
APM GHG-4: PG&E will continue to be an active member of the SF_6 Emission Reduction Partnership, which focuses on reducing emissions of sulfur hexafluoride (SF_6) from transmission and distribution sources. PG&E will also continue to institute new rules for more accurately monitoring its equipment for SF_6 leaks and immediately repairing leaks that are discovered. PG&E will ensure that all breakers purchased for this project will have a manufacturer's guaranteed SF_6 leakage rate of 0.5 percent per year or less.	Verify that all breakers have a manufacturer's guaranteed SF_6 leakage rate of 0.5 percent per year or less.	During construction
Biological Resources		
APM Bio-2: To prevent the spread of noxious weeds, only equipment which has been washed and is free of caked on mud, dirt, and other debris which could house plant seeds will be allowed in the project area.	Visually inspect equipment for presence of mid, dirt, or other debris.	During construction
APM Bio-6: In accordance with, and in addition to the training requirements in AMM 1 of the PG&E San Joaquin Valley Habitat Conservation Plan (HCP), worker environmental awareness training will be conducted prior to initiating project construction activities and throughout the duration of construction, such that all new site workers have received training. Worker training will detail sensitive species of the project area and those conservation measures which have been identified to minimize impacts to them. In addition, workers will be informed about the presence, life history, and habitat of these species. Training will also include information on federal and state laws protecting migratory birds. Documentation of worker training will be available on-site.	Verify worker training documentation.	During construction
APM Bio-7: In accordance with the monitoring requirements in AMMs 15 and 17 of the HCP, a biological monitor will be onsite during ground disturbing activities with the potential to disturb habitat near flagged exclusion and restricted activity zones in order to minimize impacts to salamanders. Before the start of work each morning, the biological monitor will check under all equipment and stored	PG&E will retain a qualified biological monitor to conduct monitoring in accordance with the measure.	During ground disturbing activities with the potential to disturb habitat near flagged exclusion zones.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
supplies left in the work area overnight within 600 feet of suitable habitat for listed species with a potential to occur in the area. The monitor will have the authority to stop work or determine alternative work practices in consultation with agencies and construction personnel, as appropriate, if construction activities are likely to impact sensitive biological resources. The biological monitor will document monitoring activities in a daily log summarizing construction activities and environmental compliance.		Before the start of work each morning.
APM Bio-8: All work will be done in a manner that minimizes disturbance to wildlife and habitat.	Verify that measure is being implemented.	During construction
APM Bio-9: All food waste and associated containers will be disposed of in closed lid containers.	Visually inspect food waste containers.	During construction
APM Bio-11: Proper spill prevention and cleanup equipment shall be readily available.	Verify that spill prevention and cleanup equipment is available on site	During construction
APM Bio-12: Where work on pavement, existing roads, and existing disturbed areas is not practicable, worker vehicles and construction equipment shall remain on identified access routes and designated areas for construction. If additional areas are required, a biologist will survey the new area, identify any sensitive biological resource, and flag that resource for avoidance.	Verify that the measure is being implemented.	During construction
APM Bio-13: No pets or firearms are permitted within the project area.	Verify exclusion of pets and firearms within the project area.	During construction
APM Bio-14: Sensitive areas will be clearly flagged or marked. Sensitive areas will be avoided during construction unless the necessary agency permits and/or approvals have been obtained.	Visually inspect that sensitive areas are flagged and avoided. Verify that permits have been obtained	During construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
	and are on-site if sensitive areas are used.	
APM Bio-18: All pole holes will be backfilled or covered at the end of the work day by a method that would restrict any wildlife from entering the hole from the surface, and to prevent human injury.	Visually inspect for backfilling or covering of pole holes.	At the end of the work day, during construction
APM Bio-19: PG&E will consider the location of seasonal wetlands in the design of the power line. No power line poles will be placed in seasonal wetlands. Prior to construction the perimeter of the seasonal wetland near project construction will be flagged for avoidance.	CPUC's biologist will verify that wetlands have been properly delineated and flagged for avoidance.	Prior to and during construction
APM Bio-20: Suitable habitat areas (i.e., seasonal wetlands, ponds, and canals) within the project area will be identified during preconstruction surveys. These areas will be mapped and clearly marked in the field, and will be avoided during construction.	PG&E will retain a qualified biologist/botanist to conduct pre-construction surveys and mark suitable habitat areas. Verify that suitable habitat areas are marked and avoided.	Prior to and during construction
APM Bio-22: Additional conservation measures and/or mitigation recommended by the USFWS and CDFG through consultation for the California tiger salamander will be incorporated into the project. Any APMs that conflict with permits issued by the USFWS and/or CDFG will be superseded by those resource agency permit requirements.	Verify implementation USFWS and CDFG permit requirements.	During construction
APM Bio-24: Avian Power Line Interaction Committee Guidelines in accordance	N/A	Prior to construction.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006[1] will be incorporated into the power line design to minimize the likelihood of avian electrocutions.		
APM Bio-25: To the extent that the terms of these APMs conflict with subsequently negotiated terms and conditions of any state and/or federal environmental permit, the subsequent permit conditions will supersede the terms of these APMs.	Verify implementation USFWS and CDFG permit requirements.	During construction
AMM 1: Employees and contractors performing O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.	Verify that personnel receive environmental education training.	During construction
AMM 2: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.	Visually inspect for vehicles and equipment using pavement, existing roads and previously disturbed areas for parking.	During construction
AMM 3: The development of new access and ROW roads by PG&E will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.	Verify the minimization of vegetation clearing and blading for access roads	During construction
AMM 4: Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.	Verify vehicle speeds under 15 mph	During construction
AMM 5: Trash dumping, firearms, open fires (such as barbecues) not required by the O&M activity, hunting, and pets (except for safety in remote locations) will be	Verify that work activity sites are free of dumping,	During construction

[1] 1. Avian Power Line Interaction Committee. 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C., and Sacramento, California.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
prohibited in O&M work activity sites.	firearms, open fires, hunting, and pets	
AMM 6: No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.	Visually inspect that vehicle fueling areas are greater than 100 feet from a waterway.	During construction
AMM 7: During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone [RCZ]), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.	Verify that lines conform to latest revision PG&E's Bird and Wildlife Protection Standards; or verify that insulated jumper wires and bird/animal guards are used for equipment insulator bushings.	During construction
AMM 9: Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.	Visually inspect that erosion control measures are implemented.	During construction
AMM 10: If an activity disturbs more than 0.25 acre in a grassland, and the landowner approves or it is within PG&E rights and standard practices, the area should be returned to pre-existing conditions and broadcast-seeded using a commercial seed mix. Seed mixtures/straw used for erosion control on projects of all sizes within grasslands will be certified weed-free. PG&E shall not broadcast (or apply in other manner) any commercial seed or seed-mix to disturbance sites within other natural land-cover types, within any vernal pool community, or within occupied habitat for any plant covered species.	Visually inspect and monitor that disturbed grasslands greater than 0.25 acre are reseeded.	Post-construction
AMM 12: If a covered plant species is present, a qualified biologist will stake and	Verify that PG&E has	Prior to and during

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
flag exclusion zones of 100 feet around plant occupied habitat (both the standing individuals and the seed bank individuals) of the covered species prior to O&M activities[2]. (Note: AMM 11 addresses elderberry plants and valley elderberry longhorn beetle.)	retained a qualified botanist to flag exclusion zones around plant occupied habitat. CPUC's biologist will verify that exclusion zones have been properly delineated and flagged.	construction
AMM 13: If a covered annual plant species is present, O&M activities will occur after plant senescence and prior to the first significant rain to the extent practicable.	Verify that construction and O&M activities are properly timed in accordance with the measure.	During construction
AMM 14: If a covered plant species is present, the upper 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards. (This measure will be used as an AMM for narrow endemic plants only after approval by USFWS and DFG during the Confer Process.)	Visually inspect that topsoil is stockpiled and compaction is minimized in accordance with the measure.	During construction
AMM 15: If vernal pools are present, a qualified biologist will stake and flag an	Verify PG&E has retained a	Prior to construction

[2] If an exclusion zone cannot extend the specified distance from the habitat, the biologist will stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels). Measures are practicable where physically possible and not conflicting with other regulatory obligations or safety considerations; O&M activities will be prohibited or greatly restricted within restricted activity zones. However, vehicle operation on existing roads and foot travel will be permitted. A qualified biologist will monitor O&M activities near flagged exclusion and restricted activity zones. Within 60 days after O&M activities have been completed at a given worksite, all staking and flagging will be removed.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
exclusion zone prior to O&M activities. The exclusion zone will encompass 250 feet[2]. Work will be avoided after the first significant rain until June 1, or until pools remain dry for 72 hours.	qualified biologist to stake and flag an exclusion zone from vernal pools. Verify that the exclusion zone has been implemented in accordance with the measure.	activities near vernal pools.
AMM 17: If suitable habitat for covered amphibians and reptiles is present and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to O&M activities involving excavation. If necessary, barrier fencing will be constructed around the work site to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an exclusion zone of 50 feet around the potentially occupied habitat[2]. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt-nosed leopard lizard and limestone salamander) are moved to nearby suitable habitat.	Verify PG&E has retained a qualified biologist to conduct preconstruction amphibian and reptile surveys. Verify that surveys and exclusion zones have been implemented in accordance with the measure.	Prior to, during, and post construction.
AMM 18: If western burrowing owls are present at the site, a qualified biologist will work with O&M staff to determine whether an exclusion zone of 160 feet during the non-nesting season and 250 feet during the nesting season can be established. If it cannot, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.	Verify PG&E has retained a qualified biologist to implement exclusion zones for western burrowing owl. Verify that exclusion zones are implemented in accordance with the measure.	Prior to and during construction.
AMM 21: If San Joaquin kit fox dens are present, their disturbance and destruction	Verify that PG&E has	Prior to and during

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
will be avoided where possible. However, if dens are located within the proposed work area and cannot be avoided during construction, qualified biologists will determine if the dens are occupied. If unoccupied, the qualified biologist will remove these dens by hand excavating them in accordance with USFWS procedures (U.S. Fish and Wildlife Service 1999). Exclusion zones will be implemented following USFWS procedures (U.S. Fish and Wildlife Service 1999) or the latest USFWS procedures. The radius of these zones will follow current standards or will be as follows: Potential Den—50 feet; Known Den—100 feet; Natal or Pupping Den—to be determined on a case-by-case basis in coordination with USFWS and DFG. Pipes will be capped and exit ramps will also be installed in these areas to avoid direct mortality.	retained a qualified biologist for surveying of kit fox dens and implementing den removal. Verify implementation of USFWS procedures when removing kit fox dens and delineating exclusion zones.	construction.
AMM 22: All vegetation management activities will implement the nest protection program to avoid and minimize effects on Swainson's hawk, white-tailed kite, golden eagle, bald eagle, and other nesting birds. Additionally, trained pre-inspectors will use current data from DFG and CNDDB and professional judgment to determine whether active Swainson's hawk, golden eagle, or bald eagle nests are located near proposed work. If pre-inspectors identify an active nest near a proposed work area, they will prescribe measures to avoid nest abandonment and other adverse effects to these species, including working the line another time of year, maintaining a 500-foot setback, or if the line is in need of emergency pruning, contacting the HCP Administrator.	Verify work area has been pre-inspected by a qualified biologist and that the specified nest protection measures have been implemented.	Prior to and during construction.
AMM 29: No herbicide will be applied within 100 feet of exclusion zones, except when applied to cut stumps or frilled stems or injected into stems.	Verify that herbicide application measures are followed.	During construction
AMM 30: Trees being felled in the vicinity of an exclusion zone will be directionally felled away from the zone, where possible. If this is not feasible, the tree will be removed in sections.	Verify that trees are directionally felled away from the exclusion zone or removed in sections.	During construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
Mitigation Measure Biology-1: PG&E shall conduct a pre-activity survey of those portions of the project that occur within native or naturalized areas (the project route from Perrin Avenue to Shepherd Avenue). The survey should be conducted during the appropriate flowering season to identify sensitive plants that have the potential to occur within the project area. The width of the pre-activity survey will be 200 feet on the westerly side of the new power line and to the extent of PG&E's right-of-way on the easterly side. The survey will consist of walking parallel transects spaced approximately 50 feet apart to provide 100 percent visual coverage of the construction site and adjacent lands. The surveyors will map the location of all sensitive plants identified during the survey on drawings of the project site, noting the distance to construction areas, access roads, and laydown areas. If sensitive plant species are present, AMM-12, AMM-13, and AMM-14, shall be implemented.	Verify that PG&E has retained a qualified botanist to pre-activity surveys. Verify that pre-activity surveys were conducted and applicable AMMs implemented.	Prior to and during construction.
Mitigation Measure Biology-2: A pre-activity survey for Molestan blister beetle shall be conducted by a qualified biologist within 30 days prior to the start of ground-disturbing construction activities. The width of the pre-activity survey will be to the extent of the power line easement and predetermined access routes that may fall outside of the easement area within suitable habitat (grasslands). If Molestan blister beetles are encountered, the biologist shall flag an exclusion zone of 25 feet around the potentially occupied habitat. If a smaller exclusion zone is required, the exclusion zone diameter will be determined by the project biologist based on field conditions and construction activities. The exclusion zone shall be subject to review by CPUC.	Verify preconstruction survey for Molestan blister beetle is conducted within30 days prior to start of ground-disturbing construction activities in grassland areas. Verify that exclusion zones are implemented in accordance with the measure.	Prior to construction in grasslands.
Mitigation Measure Biology-3: Within 30 days of construction, a qualified biologist shall conduct a pre-activity survey within the suitable habitat for burrowing owl to determine this species' presence or absence. The width of the pre-activity survey will be 500 feet on the westerly side of the new power line, and to the extent of PG&E's right-of-way on the easterly side. The survey will consist of walking parallel transects spaced approximately 100 feet apart to provide 100	Verify project and buffer area were surveyed for burrowing owls within 30 days of construction.	Prior to construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
percent visual coverage of the construction site and adjacent lands. If western burrowing owls are present at the site, AMM-18 shall be implemented.		
Mitigation Measure Biology-4 **(proposed to supersede APM Bio-23)**: If construction activities are scheduled to occur during the avian breeding season (February 28 to August 31), a preconstruction survey for migratory birds shall be conducted by a qualified biologist within 30 days prior to the start of ground-disturbing construction activities. The width of the pre-activity survey for raptor nests will be in vegetation within 500 feet on the westerly side of the new power line alignment and up to 500 feet on the easterly side of the alignment, where access is available. At a minimum, the survey will be to the extent of PG&E's right-of-way on the easterly side. For smaller avian species, the maximum width of the survey will be in vegetation 250 feet on the westerly side of the new power line alignment and up to 250 feet on the easterly side of the alignment where access is available. At a minimum, the survey will be to the extent of PG&E's right-of-way on the easterly side. The results of the survey shall be reported to the CPUC prior to construction. If active nests are found, appropriate buffers between construction activities and the nest will be established to ensure nests are not abandoned due to project activities. The buffers shall be 50 feet for passerines and 250 feet for raptors. Work within the buffers shall not proceed until the nestlings have fledged or the nest becomes inactive, unless otherwise agreed to by the resource agency with jurisdiction over the species.	Verify preconstruction survey for migratory birds was conducted and appropriate buffers are established in accordance with the measure.	Prior to construction during the bird nesting season.
Mitigation Measure Biology-5: A preconstruction survey shall be conducted within 30 days of construction to determine the presence or absence of SJKF. This survey shall be conducted within suitable habitat and entail inspection of all burrows within 250 feet of the project site or to the extent of PG&E's right-of-way. If potential dens are detected, these dens shall be monitored using tracking medium and/or remote cameras for three nights to determine if SJKF inhabit them. If SJKF are found to be absent from the site the project can move forward with no further consideration of this species. If SJKF are found inhabiting the site or	Verify preconstruction survey for SJKF was conducted within 30 days of construction and proper minimization measures implemented as needed.	Prior to and during construction.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
surrounding lands during the survey the measures identified in AMM 21 shall be implemented.		
Mitigation Measure Biology-6: A survey for active dens of American badgers shall be performed by a qualified biologist within 30 days prior to construction grading or land clearing. Surveys shall be conducted within suitable habitat. The width of the pre-activity survey will be 250 feet on either side of the construction area or to the extent of PG&E's right-of-way. Construction may proceed once it is determined that there are no active dens in the survey area. If active dens are present, the dens shall be avoided during the breeding season and a 50-foot buffer around the den sites shall be established. Smaller buffers may be established through consultation with CDFG.	Verify American badgers survey was conducted within 30 days of construction and that appropriate buffers are implemented, as needed.	Prior to and during construction.
Cultural Resources		
APM Cult-2: If the applicant revises the location of proposed facilities and ground-disturbing activities that affect areas beyond those surveyed for the PEA, those areas will be subjected to a cultural resources inventory to ensure that any newly identified sites are avoided by ground-disturbing activities.	Verify that a cultural resources inventory is conducted for areas not surveyed for the PEA.	Prior to construction
APM Cult-3: The applicant will minimize or avoid impacts to any potentially significant prehistoric and historic resources that might be discovered during construction by implementing standard protocols that include ceasing all work within 50 feet of the discovery, protecting the discovery from further impacts, and immediately contacting a PG&E Cultural Resources Specialist.	Verify that measure is implemented for discovered cultural resources.	During construction
APM Cult-4: If human remains are discovered, work in the immediate vicinity will stop immediately and a PG&E Cultural Resources Specialist will be contacted. The location of the discovery will be secured to prevent further impacts and the location will be kept confidential. The Cultural Resources Specialist will evaluate the discovery and will contact the Fresno County Coroner upon verifying that the remains are human. If the coroner determines the remains are Native American,	Verify that measure is implemented for discovery of human remains.	During construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
the Native American Heritage Commission (NAHC) shall be contacted and the remains will be left in situ and protected until a decision is made on their final disposition.		
Mitigation Measure Cultural-1 (proposed to supersede APMs Cult-1 and Pal-1): A qualified Cultural Resources Specialist shall design and implement a Cultural Resources Awareness Program that shall be provided to all project personnel who may encounter unique archaeological properties, historical resources, or paleontological resources, including construction supervisors and field personnel. No construction worker shall be involved in field operations without having participated in the Cultural Resources Awareness Program. The Cultural Resources Awareness Program shall include, at a minimum: • A review of archaeology, history, prehistory, and Native American cultures associated with historical resources in California. • A review of photographs and figures of potential historical resources and unique archaeological properties in California. • A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to cultural resource preservation. • A discussion of procedures to be followed in the event that unanticipated paleontological or cultural resources are discovered during implementation of the project. • A discussion of disciplinary and other actions that could be taken against persons violating historical preservation laws and PG&E policies. • PG&E will require all contractors to comply with the Worker Environmental Awareness Program, PG&E policies, and other applicable laws and regulations as part of their contracts. • Environmental training shall also be provided to workers	Verify content of Cultural Resources Awareness Program training materials. Verify construction workers' participation in the Cultural Resources Awareness Program prior to field operation involvement.	60 days prior to construction and during construction.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
regarding the protection of paleontological resources and procedures to be implemented in the event fossil remains are encountered during ground-disturbing activities. The Cultural Resources Awareness Program may be conducted in concert with other environmental or safety awareness and education programs for the project. Cultural Resources Awareness Program training materials and/or presentations shall be submitted to CPUC for review and approval prior to the start of training sessions and at least 30 days prior to the start of construction.		
Mitigation Measure Cultural-2: Prior to construction, a certified paleontologist shall be retained by PG&E to supervise construction excavations and to produce a Paleontological Resource Management Plan (PRMP) for the proposed project. The PRMP shall be prepared and implemented under the direction of the paleontologist, and shall be submitted to CPUC for review and approval at least 30 days prior to construction. Construction activities that require excavation or augering of 5 feet in diameter or greater at depths greater than 5 feet shall be monitored on a part-time or full-time basis by a paleontological construction monitor only in those parts of the project area where these activities will disturb previously undisturbed strata in the Riverbank Formation rock unit. Should monitoring reveal paleontological resources of interest during visual inspection of the exposed rock unit, CPUC shall be immediately notified, and microscopic examination of matrix samples shall be conducted to determine if fossils are present.	Verify that a paleontologist has been retained to supervise excavations. Verify content and implementation of Paleontological Resource Management Plan (PRMP).	60 days prior to and during construction.
Mitigation Measure Cultural-3 (proposed to supersede APM Pal-1): In the unlikely event that previously unidentified paleontological resources are uncovered during implementation of the project, CPUC shall be notified immediately and all ground-disturbing work shall be temporarily halted or diverted away from the discovery to another location. PG&E's paleontological resources specialist or his/her designated representative shall inspect the discovery and determine whether further investigation is required. If the discovery is	Verify that measure is implemented for the discovery of unidentified paleontological resources.	During construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
significant, but can be avoided and no further impacts would occur, the resource shall be documented in the appropriate paleontological resource records and no further effort shall be required. If the resource is significant, but cannot be avoided and may be subject to further impact, PG&E shall evaluate the significance of the resources and implement data recovery excavation or other appropriate treatment measures, as approved by the landowner if on third-party property and as verified by CPUC. These measures may include a report prepared in accordance with PG&E, Society of Vertebrate Paleontology guidelines, and CPUC requirements, and/or curation at a recognized museum repository.		
Geology and Soils		
APM Geo-1/WQ-1: Erosion and Sediment Control Plan (ESCP) implementation. An ESCP will be prepared in association with the Stormwater Pollution Prevention Plan (SWPPP). This plan will be prepared in accordance with the Water Board guidelines and other applicable Best Management Practices (BMPs). Implementation of the plan will help stabilize disturbed areas and waterways and will reduce erosion and sedimentation. The plan will designate BMPs that will be followed during construction activities. Erosion-minimizing efforts may include, but are not limited to, measures such as: 1. Avoiding excessive disturbance of steep slopes. 2. Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas. 3. Strictly controlling vehicular traffic. 4. Implementing a dust-control program during construction. 5. Restricting access to sensitive areas. 6. Using vehicle mats in wet areas. 7. Revegetating disturbed areas, where applicable, following construction. In areas where soils are to be temporarily	Verify that PG&E has retained a QSP to implement BMPs. Verify content and implementation of ESCP and SWPPP.	Prior to and during construction.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
stockpiled, soils will be placed in a controlled area and will be managed with similar erosion control techniques. Where construction activities occur near a surface water body or drainage channel and drainage from these areas flows towards a water body or wetland, stockpiles will be placed at least 100 feet from the water body or will be properly contained (such as berming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures will be used to protect exposed areas during and after construction activities. Erosion-control measures will be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, will remain in place until disturbed areas have stabilized. 8. The SWPPP will be designed specifically for the hydrologic setting of the project. BMPs documented in the ESCP may also be included in the SWPPP.		
Hazards and Hazardous Materials		
APM Haz-1: Emergency spill response and cleanup kits will be available on site and readily available for the cleanup of any accidental spill. Construction crews will be trained in safe handling and cleanup responsibilities prior to the initiation of construction.	Verify availability of emergency spill response and cleanup kits and construction crew training.	During construction
APM Haz-2: In the event of an accidental spill, the substation is equipped with a retention basin that meets SPCC Guidelines (40 CFR 112). The SPCC basin will be sufficiently sized to accommodate the accidental spill of all mineral oil from the largest transformer located at the substation. The substation will also be equipped	Visually inspect that the SPCC basin is being implemented	During construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Containment will be constructed around and under the battery racks with neutralizing pads.		
APM Haz-3: A water truck will be available on site during dry conditions, as assessed by the construction foreman, to prevent the ignition or spread of a wildfire. The work site will be sprayed a minimum of three times per day during dry conditions.	Verify water truck is on-site.	During construction
Mitigation Measure Hazards-1: PG&E will submit a Site Safety Plan to the CPUC at least 30 days prior to project construction. The plan will identify ways to minimize the exposure of the public to potentially hazardous materials during all phases of project construction through operation and maintenance. The plan will require appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. All hazardous materials and hazardous wastes will be handled, stored, and disposed of by personnel qualified to handle hazardous materials and in accordance with all applicable regulations. If it is necessary to store any chemicals on-site, they will be managed in accordance with all applicable regulations. Materials Safety Data Sheets will be maintained and kept available on-site, as applicable.	Verify content and implementation of SPCC Plan.	At least 30 days prior to and during construction.
Mitigation Measure Hazards-2: An Environmental Training and Monitoring Program (ETMP) shall be established to communicate any environmental concerns to all field personnel, in addition to appropriate work practices, including: • Spill prevention and response measures (including BMPs), • Site-specific physical conditions to improve hazard prevention (e.g., identification of flow paths to nearest water bodies), • Review of all site-specific plans, including, but not limited to, the project's SWPPP and Site Safety Plan. A copy of the ETMP shall be submitted to the CPUC at least 30 days prior to	Verify content and implementation of ETMP	At least 30 days prior to construction and during construction.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
construction. Training records shall be kept on site and submitted to the CPUC upon request. A PG&E representative shall be designated to ensure that the plans are followed throughout the construction period. BMPs identified in the project SWPPP shall be implemented during project construction to minimize the risk of an accidental release of hazardous materials and to provide the necessary information for emergency response.		
Mitigation Measure Hazards-3: PG&E will coordinate with local emergency personnel in the event that project activities may impact an access point or route during an emergency. PG&E will notify local law enforcement and fire protection services before beginning construction activities that require road closures so that the project will not result in inadequate emergency access.	Verify PG&E's communication with emergency personnel	Prior to construction
Mitigation Measure Hazards-4: Smoking will not be permitted during fire season, except in a barren area that is paved or cleared to bare soil at least 10 feet in diameter, or within vehicles and enclosed equipment cabs. Under no circumstances will smoking be permitted during fire season while employees are operating light or heavy equipment, or while walking or working in grasslands.	Verify that smoking occurs only in approved areas.	During construction
Hydrology and Water Quality		
APM WQ-2: PG&E will avoid working within seasonal wetlands, ponds, or other water bodies. No poles will be placed within seasonal wetlands. The limits of seasonal wetlands adjacent to the work areas will be flagged in the field for avoidance. Underground canal and creek crossings will be drilled or bored underneath the water body.	CPUC's biologist will verify that wetlands have been properly flagged for avoidance. Verify that creek crossings are underneath the waterway	During construction
APM WQ-3: PG&E will engineer a permanent infiltration basin within the substation perimeter to capture on-site stormwater, clean it of potential pollutants,	Visually inspect the infiltration basin.	During construction

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan

Applicant Proposed Measure (APM) or Mitigation Measure	Monitoring Requirement	Time of Action
and infiltrate it into the local groundwater table. Sizing and design of the facility will follow industry best practices, including Fresno County and California Stormwater General Permit guidelines.		
Mitigation Measure Hydrology-1: PG&E will be responsible for contacting property owners to help in identifying underground waterlines prior to construction. PG&E will design construction activities to avoid impacts to a known waterline to the extent that sufficient information is available to identify the precise location of the line. Should PG&E cause damage to an irrigation ditch or waterline during construction, PG&E will be responsible for contacting the owner to shut off the water supply, repairing the water line or irrigation ditch, and containing released water to the extent feasible.	Verify that PG&E has identified and avoided underground waterlines.	Prior to and during construction.
Mitigation Measure Hydrology-2: In the case of a leak or other damage to the irrigation system utilized for the almond trees on the proposed substation site, PG&E will be responsible for repairing the irrigation system and employing BMPs as necessary to contain water released from the irrigation system.	Verify repairs to irrigation system.	During construction
Mitigation Measure Hydrology-3: Workers will not conduct construction activities in flooded areas during area flooding except as necessary to help alleviate the flooding or address emergency safety issues at the project site. Should flooding of the proposed substation or project area result in damage to substation structures or power poles, non-emergency repairs to these structures and/or pole replacement as necessary would be conducted when floodwaters subside and the area is safe for worker access. PG&E will inform CPUC of any flood damage to the project site that could change or require changes to the proposed project or affect the construction schedule.	Verify that construction does not occur during area flooding.	During construction
Land Use and Planning		
Mitigation Measure Land Use-1: PG&E will notify property owners within 300 feet of the project area at least 30 days prior to construction to alert them of project	Verify notification to nearby property owners.	30 days prior to construction.

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
activities.		
Noise		
APM Noise-1: Construction will not occur before 6:00 a.m. or after 9:00 p.m. on any day except Saturday or Sunday, when construction will not occur before 7:00 a.m. or after 5:00 p.m. Work will only be conducted outside of these hours as required for project safety or to take advantage of the limited times when the power line can be taken out of service.	Verify hours of construction.	During construction
APM Noise-3: Where feasible, construction traffic will be routed to avoid sensitive noise receptors such as residences, schools, religious facilities, hospitals, and parks.	Visually inspect location of traffic routes.	During construction
APM Noise-4: Stationary equipment used during construction will be located as far as practical from sensitive noise receptors.	Visually inspect stationary equipment surroundings.	During construction
APM Noise-6: Where feasible, equipment will be used that is specifically designed for low noise emissions and equipment powered by electric or natural gas as opposed to diesel or gasoline.	Verify equipment compliance with low noise emission requirements.	During construction
APM Noise-7: Residents in areas of heavy construction noise will be notified prior to commencing construction activities. Notification should include written notice and the posting of signs in appropriate locations with a contact number that residents can call with questions and concerns.	Verify notification of area residents.	Prior to construction
Traffic and Transportation		
APM Tran-1: Deliveries will be made during normal construction hours.	Verify deliveries comply with the scheduled construction hours.	During construction
APM Tran-2: PG&E shall prepare and implement a Traffic Management Plan or	Verify Traffic Management	Prior to and during

Table 4.1-1 *(Continued)*: Mitigation Monitoring Plan		
Applicant Proposed Measure (APM) or Mitigation Measure	**Monitoring Requirement**	**Time of Action**
plans as required by, and in accordance with County requirements. The plan or plans shall be submitted to the CPUC when submitted to the County, and shall be distributed to all construction supervisors prior to commencement of construction activities.	Plan preparation and implementation	roadway closures.

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6 REPORT PREPARATION

6.1 LIST OF PREPARERS

This section lists the individuals who either prepared or participated in the preparation of this IS/MND.

6.1.1 LEAD AGENCY

Contributor	Position
Michael Rosauer	Project Manager, California Public Utilities Commission

6.1.2 CONSULTANT TEAM

This IS/MND was prepared by RMT, Inc. The following staff contributed to this report:

Contributor	Position
Laurie Hietter	Project Director, Senior Review
Susanne Heim	Project Manager
Tania Treis	Senior Reviewer
Aaron Lui	Environmental Scientist, Impact Analysis
Corey Fong	GIS Cartographer
Sarah Mearon	Project Geologist and Technical Editing
Roger Luc	Document Production
Judy McKeehan	Sanberg Group, Cultural
Jeff Gurule	Live Oak Associates, Biology
Patrick Miller	2M Associates, Aesthetics
Nathan Lawson	Sanberg Group, Technical Editor
Quent Gillard	Senior Environmental Scientist, Project Description
Bonny O'Connor	Deputy Project Manager
Karin Greenacre	Senior Environmental Scientist, Air Quality
Stefanie Smith	Environmental Scientist
Charina Gaspay	Environmental Scientist, Hazards

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APPENDIX A:
USFWS AND CDFG CORRESPONDENCE

Susanne Heim

From: Lambert, Jo L (Law)
Sent: Tuesday, April 10, 2012 6:02 PM
To: Susanne Heim (Susanne.heim@panoramaenv.com)
Cc: Rosauer, Michael; Johnson, Tom; Healy, Patricia (Patty); 'Jan Bush'; Rhodehamel, Westley; Steve Imhoof (Steven@Imhooflaw.com); Kraska, David (Law)
Subject: Verification of HCPCovered Activities related to the proposed Shepherd Substation

Hi Susanne,
Attached is correspondence between our HCP Admnistrator, USFWS and CDFG. Let me know if you need anything further.
Thanks,
Jo Lynn

-----Original Message-----
From: Dedon, Mark
Sent: Friday, April 06, 2012 2:28 PM
To: Lambert, Jo L (Law); Johnson, Tom; Healy, Patricia (Patty)
Cc: Rhodehamel, Westley; Coleman, William; Parker, Greg; Boland, Mary; aguerra@briscoelaw.net; Kellman, Janelle (Law); Davis, Susan
Subject: FW: Request to initiate confer process and for verification of HCPCovered Activities related to the proposed Shepherd Substation

Concurrence received from CDFG.

-Mark

_____
Mark Dedon
San Joaquin Valley Operations and Maintenance HCP Administrator Pacific Gas and Electric Company
3401 Crow Canyon Rd.
San Ramon, CA 94583
Office: 925-415-6370
Mobile: 415-297-9711

-----Original Message-----
From: Julie Vance [mailto:JVANCE@dfg.ca.gov]
Sent: Friday, April 06, 2012 2:24 PM
To: Joshua_Emery@fws.gov; Dedon, Mark
Cc: Thomas_Leeman@fws.gov; Rhodehamel, Westley
Subject: RE: Request to initiate confer process and for verification of HCPCovered Activities related to the proposed Shepherd Substation

We are in agreement with Josh's determination. Thanks for verifying.

Julie

Julie Vance

Environmental Program Manager
Habitat Conservation Planning
Department of Fish and Game
Central Region (R4)
1234 E. Shaw Ave
Fresno, CA 93710
(559) 243-4005 x 141

>>> "Dedon, Mark" <MFD2@pge.com> 4/6/2012 2:04 PM >>>
Josh,
Thank you for your email and concurrence that the reconductoring/pole replacement portion or work and the construction of the new line in the new right-of-way under 1 mile are covered activities under the HCP. I appreciate your caution regarding the possibility for impacting California tiger salamander during the construction of the substation where the orchard is and we will ensure that AMMs will be implemented for that phase of work. We recognize that PG&E or its contractors will not be exempt from section 9 prohibitions against take of listed species for the substation construction. We will also be implementing monitoring and or exclusion fencing, as needed, to reduce any risk for impacting listed species.

Julie,
In my conversation with Josh it is my understanding that you are in agreement with this concurrence. Please let me know if otherwise.

Thank you both for your helpful and speedy coordination.

-Mark

_____

Mark Dedon
San Joaquin Valley Operations and Maintenance HCP Administrator Pacific Gas and Electric Company
3401 Crow Canyon Rd.
San Ramon, CA 94583
Office: 925-415-6370
Mobile: 415-297-9711
From: Joshua_Emery@fws.gov [mailto:Joshua_Emery@fws.gov]
Sent: Thursday, April 05, 2012 3:09 PM
To: Dedon, Mark; jvance@dfg.ca.gov
Cc: Thomas_Leeman@fws.gov
Subject: Re: Request to initiate confer process and for verification of HCP Covered Activities related to the proposed Shepherd Substation

Mark,

As we discussed on the phone on Tuesday, there are essentially three projects in this request. One is to construct a new substation, another is to reconductor existing lines and replace poles along an existing line, and the third is the construction of a new line less than 1 mile in length. I can confirm that the reconductoring phase of the project, the replacement of existing poles, and the construction of the new line under 1 mile in length are activities that are covered under the plan.
All relevant AMM's, including AMM 17, should be in place during these activities.

PG&E is not seeking coverage for the substation project because it is not an activity covered by the HCP due to its size. The substation is to be constructed in an orchard that is not considered to be suitable habitat for listed species; however, the location is within a short distance of waterbodies that may or may not provide habitat for the California tiger salamander. It is possible then that the construction of the substation may result in take if California tiger salamanders wander into the site. Without obtaining take coverage for that project, PG&E will be proceeding at its own risk in regards to the federal Endangered Species Act. We recommend adopting the AMM's in the PG&E O&M HCP as best management practices for this project in order to minimize the likelihood for take to occur, although it is important to not that this will not exempt PG&E or its contractors from section 9 prohibitions against take of listed species.

Let me know if you have any questions or need anything else.

Thank you,
Josh Emery
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Endangered Species Division
2800 Cottage Way, W-2605
Sacramento, California 95825

joshua_emery@fws.gov<mailto:joshua_emery@fws.gov>
(916)414-6692

"Dedon, Mark" <MFD2@pge.com<mailto:MFD2@pge.com>>

03/28/2012 06:03 PM

To

"Julie Vance (JVANCE@dfg.ca.gov<mailto:JVANCE@dfg.ca.gov>)"
<JVANCE@dfg.ca.gov<mailto:JVANCE@dfg.ca.gov>>,
"'Joshua_Emery@fws.gov'"
<Joshua_Emery@fws.gov<mailto:Joshua_Emery@fws.gov>>

cc

"Rhodehamel, Westley" <WMR6@pge.com<mailto:WMR6@pge.com>>, "Johnson, Tom"
<TJJ1@pge.com<mailto:TJJ1@pge.com>>, "Healy, Patricia (Patty)"
<PMH9@pge.com<mailto:PMH9@pge.com>>

Subject

Request to initiate confer process and for verification of HCP Covered Activities related to the proposed Shepherd Substation

Josh and Julie,
In accordance with PG&E*s San Joaquin Valley O&M HCP, I am requesting initiation of the confer process for an E13 activity (electric tower line construction) (see pages 2-26 and 4-16 of the HCP) that is scheduled to start construction in June 2013 in Fresno County, north of the City of Clovis. I am making this request due to the presence of medium suitable habitat for CTS and the existence of a CNDDB record for California tiger salamander (CTS) located within 2 miles of the worksite. In addition, I am seeking your verification that the proposed project is a Covered Activity under the HCP, as explained further below.
The total distance of the new 115-kV power line right-of-way (ROW) is
0.63 miles. A portion of this new ROW (about 26%) is within habitat that provides refugia for the CTS. The attached pre-activity survey indicates that there is medium suitable habitat for CTS adjacent to the ROW that could be impacted by the project.
Another portion of the new power line will be constructed within an existing ROW by rebuilding the existing electric distribution line to accommodate the power line as overbuild (HCP activities E8 and E9- electrical system pole and equipment replacement and repair, and electric line reconductoring, pages 2-22 and 2-23 of the HCP). The total distance of this existing ROW is 0.87 miles. The pre-activity survey for this activity also indicates about 26% of the traversed grassland and wetlands occur in medium suitable habitat for CTS adjacent to the ROW.
Combined, the power line in new ROW and existing ROW totals 1.5 miles.
These project components are part of the planned construction of the proposed Shepherd Substation during the same period and will help meet future load demand. The substation will connect 115-kV and electric distribution circuits using three transformers (at full build-out). The substation will be located where there is an existing orchard and will not affect natural vegetation. The attached figure shows the location of the proposed substation, rebuilt distribution/power line and new power line ROW. We believe that power line projects are Covered Activities in the San Joaquin Valley O&M HCP.
On November 9, 2011, PG&E senior planner Greg Parker and senior biologist Wes Rhodehamel met with CDFG biologist Lisa Gymer and reviewed the portions of the power line ROWs described above. Lisa expressed her satisfaction with the project design based on incorporation of approved avoidance and minimization measures into the projects* design.
This work will be performed under the jurisdiction of the California Public Utility Commission (CPUC). Their consultant has asked that we obtain verification from you that the portions of the work described above in natural vegetation are Covered Activities under the HCP.
To facilitate CPUC approval, I would appreciate your response to this request as soon as possible, verifying that the proposed power line project activities are Covered Activities under the HCP.
In addition, I am requesting the initiation of the confer process for the E13 activity.
I would like to set up a conference call to initiate our confer
discussion at your earliest convenience. Please let me know your
availability for that phone call within the next 5 business days, if possible. In the meantime, please let me know if you have any questions, or need additional information.
Thanks in advance,
-Mark

_____

Mark Dedon
San Joaquin Valley Operations and Maintenance HCP Administrator Pacific Gas and Electric Company
3401 Crow Canyon Rd.
San Ramon, CA 94583
Office: 925-415-6370
Mobile: 415-297-9711

APPENDIX B:
CORRESPONDENCE WITH NATIVE AMERICANS

TRIBAL CONSULTATION CORRESPONDENCE

E.1 Sample Tribal Consultation Letter

TRANSCON
ENVIRONMENTAL

January 7, 2009

Tribe/Nation
Address

Re: Pacific Gas and Electric Company's Shepherd Substation Project, Fresno County, California

Dear _____:

The purpose of this letter is to request any information or comments that you might have regarding cultural resources or areas of concern to Native American communities within or near PG&E's proposed Shepherd Substation Project (see enclosed maps). The Area of Potential Effect (APE) is located on private land. The California Public Utilities Commission is acting as the lead agency for California Environmental Quality Act (CEQA) review. For this reason, tribal scoping is being conducted.

The proposed substation would be constructed on approximately five acres of almond orchard. There are several transmission line alternatives which would connect the substation to the existing electrical supply gird. All transmission line alternatives are less than four miles in length. The project is located within sections 17 and 20, Township 12 South, Range 21 East, Clovis 7.5-minute USGS topographic quadrangle map (Mount Diablo Baseline and Meridian). PG&E has retained Transcon Environmental, Inc. to conduct the evaluation and to do an archaeological survey of the APE.

Coordination with the Native American Heritage Commission (NAHC) has been conducted and no information on the project area was available. NAHC has recommended that you be contacted. Please let us know if you have any concerns with the project. Any other information that you can provide for this project area would also be helpful. If you have any questions or comments, please feel free to contact me at (480) 807-0095.

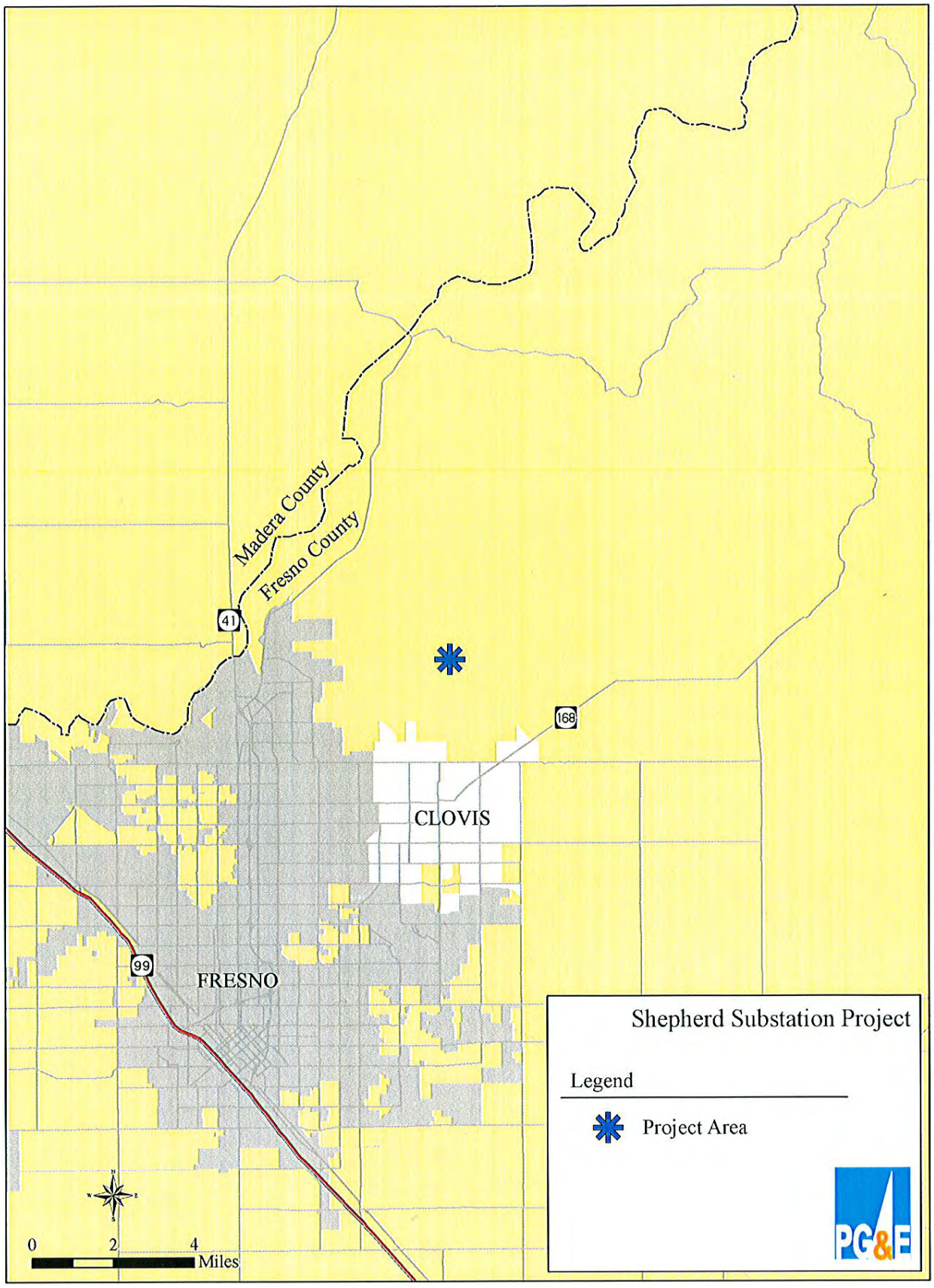
Sincerely,

Transcon Environmental

Everett Bassett
Cultural Resources Director

encl.

3740 E. Southern Avenue, Suite 218 - Mesa, Arizona 85206 - 480807.0095 - info@transconusa.com


Madera County
Fresno County
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168
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CLOVIS
FRESNO
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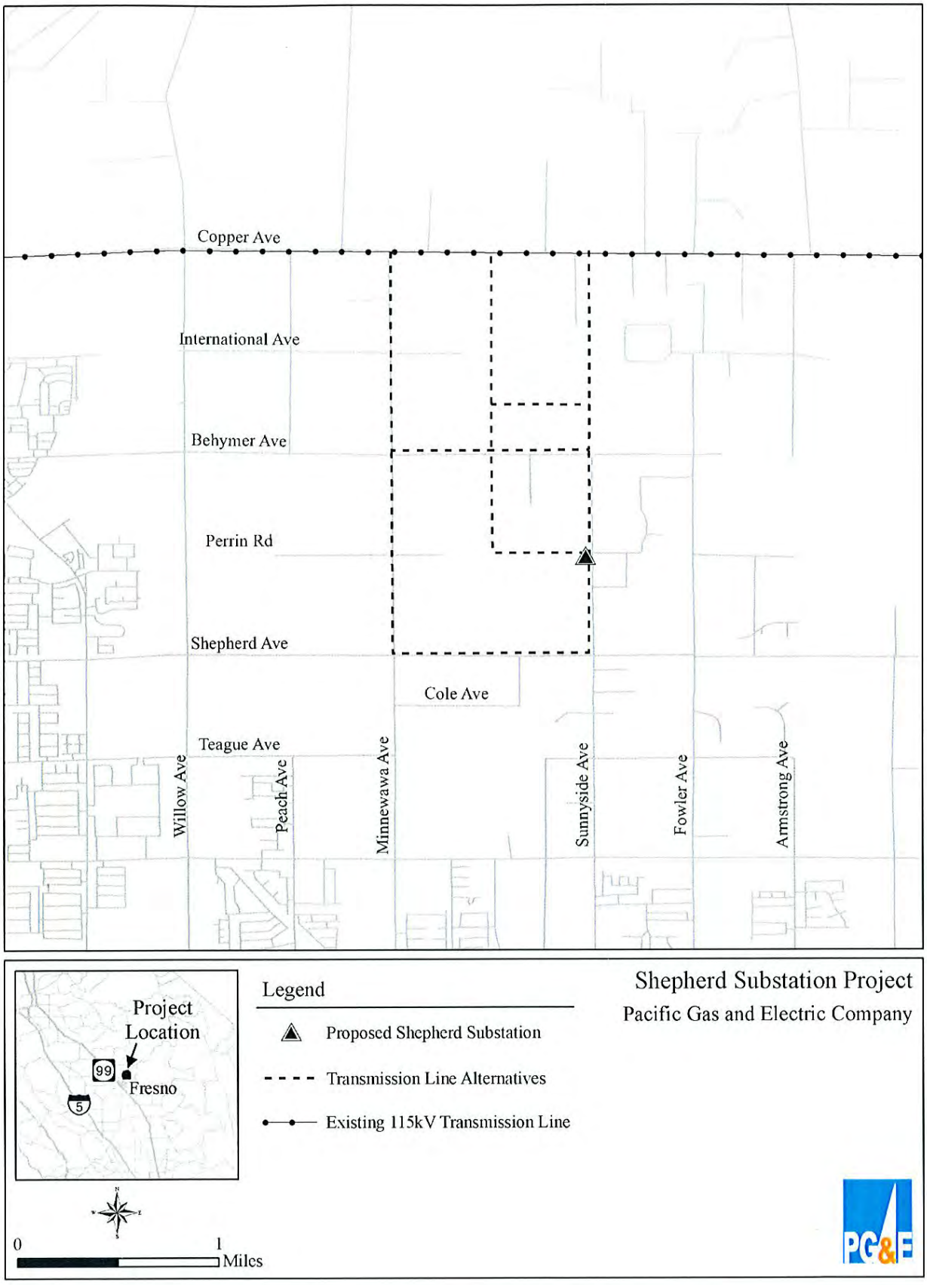
Miles
Shepherd Substation Project
Legend
Project Area
PG&E


Copper Ave
International Ave
Behymer Ave
Perrin Rd
Shepherd Ave
Cole Ave
Teague Ave
Willow Ave
Peach Ave
Minnewawa Ave
Sunnyside Ave
Fowler Ave
Armstrong Ave
Project Location
99
Fresno
5
Legend
Proposed Shepherd Substation
Transmission Line Alternatives
Existing 115kV Transmission Line
Shepherd Substation Project
Pacific Gas and Electric Company
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1
Miles
PG&E

E.2 Native American Heritage Commission Letter

STATE OF CALIFORNIA — Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

December 22, 2008

Mr. Everett Bassett
TRANSCON ENVIRONMENTAL
3740 E. Southern Avenue, Suite 218
Mesa, Arizona 85206

Sent by FAX to 480-807-0068
No. Pages: 3

Re: Request for a Sacred Lands File records search for Shepherd Substation Project located north of Clovis and southeast of Friant in Fresno County, California

Dear Mr. Bassett:

The Native American Heritage Commission was able to perform a record search of its Sacred Lands File (SLF) for the affected project area (APE). The SLF search failed to indicate the presence of numerous Native American cultural resources in the project area (APE or 'area of potential effect).. The absence of an archaeological or historical resource does not indicate that it does not exist. Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. A Native American tribe or individual may be the only source of a cultural resource.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the nearest tribes that may have knowledge of cultural resources in the project area. We recommend that you contact the other persons on the attached list of Native American contacts. They may have specific knowledge as to whether or not the known cultural resources identified may be at-risk by the proposed project

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contact List

Native American Contacts
Fresno County
December 22, 2008

Big Sandy Rancheria of Mono Indians
Connie Lewis, Chairperson
P.O. Box 337 / 7302 Rancheria Western Mono
Auberry , CA 93602
cl@bigsandyrancheria.com
(559) 855-4003
(559) 855-4129 Fax

Dumna Wo-Wah Tribal Goverment
Keith F. Turner, Tribal Contact
P.O. Box 306 Dumna/Foothill
Auberry , CA 93602 Mono
(559) 855-3128 Home
(559) 696-0191 (Cell)

Cold Springs Rancheria of Mono Indians
Travis Coleman, Chairperson
P.O. Box 209 Mono
Tollhouse , CA 93667
tcoleman@ca.ihs.gov
(559) 855-5043
559-855-4445 - FAX

Traditional Choinumni Tribe
Angie Osborne
2787 N Piedra Road Choinumni/Foothill
Sanger , CA 93657
(559) 787-3336

North Fork Mono Tribe
Ron Goode, Chairperson
13396 Tollhouse Road Mono
Clovis , CA 93619
eagleye@cuip.net
(559) 299-3729 Home

Sierra Nevada Native American Coalition
Lawrence Bill, Interim Chairperson
P.O. 125 Mono
Dunlap , CA 93621 Foothill Yokuts
(559) 338-2354

Table Mountain Rancheria
Lee Ann Walker Grant, Chairperson
P.O. Box 410 Yokuts
Friant , CA 93626-0177
(559) 822-2587
(559) 822-2693 FAX

Choinumni Tribe; Choinumni/Mono
Lorrie Planas
2736 Palo Alto Choinumni
Clovis , CA 93611 Mono

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Pacific Gas and Electric Company's Shepard Substation Project located north of Clovis and southeast of Friant in Fresno County, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contacts
Fresno County
December 22, 2008

Kings River Choinumni Farm Tribe
John Davis, Chairman
1064 Oxford Avenue — Foothill Yokuts
Clovis , CA 93612-2211 — Choinumni
559-324-9908

Dumna Tribal Government
Jim Redmoon - Cultural Resources Representative
1305 E. Sussex Way — Dumna/Foothill
Fresno , CA 93704 — Choinumni
559-241-0226

Kings River Choinumni Farm Tribe
Stan Alec
2248 Vartikian — Foothill Yokuts
Clovis , CA 93611 — Choinumni
559-297-1787
559-647-3227 - cell

The Choinumni Tribe of Yokuts
Rosemary Smith, Chairperson
1505 Barstow — Choinumni
Clovis , CA 96311 — Foothill YoKut
monoclovis@yahoo.com
559-862-5757

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Pacific Gas and Electric Company's Shepard Substation Project located north of Clovis and southeast of Friant in Fresno County, California for which a Sacred Lands File search and Native American Contacts list were requested.

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

March 26, 2012

Mr. Everett Bassett
Terecom, Inc.
3740 E. Southern Avenue, Suite 218
Mesa, AZ 85206

Sent by U.S. Mail

Re: Sacred Lands File Search and Native American Contacts list for the **"Pacific Gas & Electric (PG&E) Shepherd Substation Project;"** located in the Fresno area; Fresno County, California;

Dear Mr. Bassett:

The Native American Heritage Commission (NAHC) conducted a Sacred Lands File search of the 'area of potential effect,' (APE) based on the USGS coordinates provided and **Native American cultural resources were not identified** in the project area of potential effect (e.g. APE): you specified. Also, please note; the NAHC Sacred Lands Inventory is not exhaustive and does not preclude the discovery of cultural resources during any project groundbreaking activity.

California Public Resources Code §§5097.94 (a) and 5097.96 authorize the NAHC to establish a Sacred Land Inventory to record Native American sacred sites and burial sites. These records are exempt from the provisions of the California Public Records Act pursuant to. California Government Code§6254 (r). The purpose of this code is to protect such sites from vandalism, theft and destruction.

In the 1985 Appellate Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites

The California Environmental Quality Act (CEQA – CA Public Resources Code §§ 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. CA Government Code §65040.12(e) defines "environmental justice" provisions and is applicable to the environmental review processes.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Local Native Americans may have knowledge of the religious and cultural significance of the historic properties of the proposed project for the area (e.g. APE). Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). We urge consultation with those tribes and interested Native Americans on the list the NAHC has attached in order to see if your proposed project might impact Native American cultural resources. Lead agencies should consider avoidance as defined in §15370 of the CEQA Guidelines when significant cultural resources as defined by the CEQA Guidelines §15064.5 (b)(c)(f) may be affected by a proposed project. If so, Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "substantial," and Section 2183.2 which requires documentation, data recovery of cultural resources.

The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

Partnering with local tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C 4321-43351) and Section 106 4(f), Section 110 (f)(k) of federal NHPA (16 U.S.C. 470 *et seq*), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The NAHC remains concerned about the limitations and methods employed for NHPA Section 106 Consultation.

Also, California Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery', another important reason to have Native American Monitors on board with the project.

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. An excellent way to reinforce the relationship between a project and local tribes is to employ Native American Monitors in all phases of proposed projects including the planning phases.

Confidentiality of "historic properties of religious and cultural significance" may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision

on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibility threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton

Attachment: Native American Contact List

Native American Contacts
Fresno County
March 26, 2012

Big Sandy Rancheria of Mono Indians
Liz Hutchins Kipp, Chairperson
P.O. Box 337 / 37302 Western Mono
Auberry , CA 93602
ck@bigsandyrancheria.com
(559) 855-4003
(559) 855-4129 Fax

Cold Springs Rancheria of Mono Indians
Robert Marquez, Chairperson
P.O. Box 209 Mono
Tollhouse , CA 93667
(559) 855-5043
559-855-4445 - FAX

Sierra Nevada Native American Coalition
Lawrence Bill, Interim Chairperson
P.O. 125 Mono
Dunlap , CA 93621 Foothill Yokuts
(559) 338-2354 Choinumni

Choinumni Tribe; Choinumni/Mono
Lorrie Planas
2736 Palo Alto Choinumni
Clovis , CA 93611 Mono

Table Mountain Rancheria
Bob Pennell, Cultural Resources Director
P.O. Box 410 Yokuts
Friant , CA 93626-0177
(559) 325-0351
(559) 217-9718 - cell
(559) 325-0394 FAX

Kings River Choinumni Farm Tribe
John Davis, Chairman
1064 Oxford Avenue Foothill Yokuts
Clovis , CA 93612-2211 Choinumni
(559) 307-6430

Dunlap Band of Mono Historical Preservation Soc
Mandy Marine, Board Chairperson
P.O Box 18 Mono
Dunlap , CA 93621
mandy_marine@hotmail.
com
559-274-1705

Chowchilla Tribe of Yokuts
Jerry Brown
10553 N. Rice Road North Valley Yokuts
Fresno , CA 93720
559-434-3160

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed Shepherd Substation Project of the Pacific Gas & Electric Company; located in the Fresno area of Fresno County, California for whcih a Sacred Lands File search and Native American Contacts list were requested.

Native American Contacts
Fresno County
March 26, 2012

The Choinumni Tribe of Yokuts
Rosemary Smith, Chairperson
1505 Barstow
Clovis , CA 96311
monoclovis@yahoo.com

Choinumni
Foothill YoKut

Frank Marquez
P.O. Box 565
Friant , CA 93626
francomarquez@pmr.org
559-213-6543 - cell
559-822-3785

Mono
Foothill Yokut

Santa Rosa Tachi Rancheria
Lalo Franco, Cultural Coordinator
P.O. Box 8
Lemoore , CA 93245
(559) 924-1278 - Ext. 5
(559) 924-3583 - FAX

Tachi
Tache
Yokut

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

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Pacific Gas and Electric Company

Wendy M. Nettles, M.A., R.P.A.
Senior Cultural Resources Specialist
Land and Environmental Management

Mailing Address
1455 E. Shaw Ave.
Fresno, CA 93710
Tel: (559) 263.5834
Mobile: (559) 513.9481
Email: wmn3@PGE.com

April 5, 2012

Connie Lewis, Chairperson
Big Sandy Rancheria of Mono Indians
PO Box 337
Auberry, CA 93602

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Ms. Lewis:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

Approval by the California Public Utilities Commission (CPUC) is required and California Environmental Quality Act (CEQA) analyses, including Tribal consultation, are being conducted. PG&E has retained Transcon Environmental to conduct the evaluation and to do an archaeological survey of the portions subject to disturbance.

Coordination with the Native American Heritage Commission (NAHC) has been conducted and NAHC recommended that your community be contacted. The project area is located within T12S, R21E, Sections 20, 21, 28, and 29 on the Clovis, CA 7.5-minute USGS quadrangles.

Please let us know if you have any concerns with the project. Any other information that you can provide for this project area would also be helpful. If you have any questions or comments, please feel free to contact me at 559-263-5834 or wmn3@pge.com.

Sincerely,

Wendy M. Nettles
Sr. Cultural Resources Specialist

Attachment

0 1,000 Feet

Legend

- Shepherd Avenue West (all underground)
- Shepherd Avenue South (underground)
- Shepherd Avenue South (Overhead)
- Shepherd Avenue East (all underground)

Project Aerial

Shepherd Substation Project
Distribution Circuits Supplement

PG&E

November 28, 2011 G:\Projects\PGE Shepherd-Substation Distribution_Line_Circuits\Shepherd Substation Distribution_Circuits_Preliminary_Base_Aerial_8x11.mxd

Pacific Gas and Electric Company

Wendy M. Nettles, M.A., R.P.A.
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Land and Environmental Management

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Fresno, CA 93710
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Email: wmn3@PGE.com

April 5, 2012

Travis Coleman, Chairperson
Cold Springs Rancheria of Mono Indians
PO Box 209
Tollhouse, CA 93667

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Mr. Coleman:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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April 5, 2012

Ron Goode, Chairperson
North Fork Mono Tribe
13396 Tollhouse Road
Clovis, CA 93619

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Mr. Goode:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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Land and Environmental Management

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Mobile: (559) 513.9481
Email: wmn3@PGE.com

April 5, 2012

Lee Ann Walker Grant, Chairperson
Table Mountain Rancheria
PO Box 410
Friant, CA 93626-0177

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Ms. Grant:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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Email: wmn3@PGE.com

April 5, 2012

Keith F. Turner, Tribal Contact
Dumma Wo-Wah Tribal Government
PO Box 306
Auberry, CA 93602

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Mr. Turner:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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Sincerely,

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Sr. Cultural Resources Specialist

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Fresno, CA 93710
Tel: (559) 263.5834
Mobile: (559) 513.9481
Email: wmn3@PGE.com

April 5, 2012

Ms. Angie Osborne
Traditional Choinumni Tribe
2787 North Piedra Road
Sanger, CA 93657

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Ms. Osborne:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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Sr. Cultural Resources Specialist

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Senior Cultural Resources Specialist
Land and Environmental Management

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Fresno, CA 93710
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Mobile: (559) 513.9481
Email: wmn3@PGE.com

April 5, 2012

Lawrence Bill, Interim Chairperson
Sierra Nevada Native American Coalition
PO Box 125
Dunlap, CA 93621

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Mr. Bill:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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1455 E. Shaw Ave.
Fresno, CA 93710
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Mobile: (559) 513.9481
Email: wmn3@PGE.com

April 5, 2012

Ms. Lorrine Planas
Choinumni Tribe; Choinumni/Mono
2736 Palo Alto
Clovis, CA 93611

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Ms. Planas:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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Wendy M. Nettles
Sr. Cultural Resources Specialist

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Email: wmn3@PGE.com

April 5, 2012

John Davis, Chairman
Kings River Choinumni Farm Tribe
1064 Oxford Avenue
Clovis, CA 93612

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Mr. Davis:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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Email: wmn3@PGE.com

April 5, 2012

Jim Redmoon, Cultural Resources Representative
Dumma Tribal Government
1305 East Sussex Way
Fresno, CA 93704

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Mr. Redmoon:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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Please let us know if you have any concerns with the project. Any other information that you can provide for this project area would also be helpful. If you have any questions or comments, please feel free to contact me at 559-263-5834 or wmn3@pge.com.

Sincerely,

Wendy M. Nettles
Sr. Cultural Resources Specialist

Attachment

0 1,000 Feet

Legend

- Shepherd Avenue West (all underground)
- Shepherd Avenue South (underground)
- Shepherd Avenue South (Overhead)
- Shepherd Avenue East (all underground)

Project Aerial

Shepherd Substation Project
Distribution Circuits Supplement

PG&E

November 28, 2011 G:\Projects\PGE Shepherd-Substation Distribution_Line_Circuits\Shepherd Substation Distribution_Circuits_Preliminary_Base_Aerial_8x11.mxd

Pacific Gas and Electric Company

Wendy M. Nettles, M.A., R.P.A.
Senior Cultural Resources Specialist
Land and Environmental Management

Mailing Address
1455 E. Shaw Ave.
Fresno, CA 93710
Tel: (559) 263.5834
Mobile: (559) 513.9481
Email: wmn3@PGE.com

April 5, 2012

Mr. Stan Alec
Kings River Choinumni Farm Tribe
2248 Vartikian
Clovis, CA 93611

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Mr. Alec:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

Approval by the California Public Utilities Commission (CPUC) is required and California Environmental Quality Act (CEQA) analyses, including Tribal consultation, are being conducted. PG&E has retained Transcon Environmental to conduct the evaluation and to do an archaeological survey of the portions subject to disturbance.

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Mobile: (559) 513.9481
Email: wmn3@PGE.com

April 5, 2012

Rosemary Smith, Chairperson
The Choinumni Tribe of Yokuts
1505 Bartsow
Clovis, CA 93611

RE: PG&E Shepherd Substation Project Distribution Circuits

Dear Ms. Smith:

The purpose of this letter is to solicit any information or comments your community might have regarding cultural resources or other areas of concern within or near PG&E's proposed Shepherd Substation Project Distribution Circuits in Clovis and Fresno County (see enclosed map). The project involves constructing approximately 2.5 miles of new buried 21 kV and 12 kV distribution lines from the proposed substation to intercept existing distribution circuits along Shepherd Avenue and Sunnyside Avenue. In addition, approximately one mile of existing distribution line along Sunnyside Avenue will be reconductored and located on new wood poles.

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Please let us know if you have any concerns with the project. Any other information that you can provide for this project area would also be helpful. If you have any questions or comments, please feel free to contact me at 559-263-5834 or wmn3@pge.com.

Sincerely,

Wendy M. Nettles
Sr. Cultural Resources Specialist

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Distribution Circuits Supplement

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November 28, 2011 G:\Projects\PGE Shepherd-Substation Distribution_Line_Circuits\Shepherd Substation Distribution_Circuits_Preliminary_Base_Aerial_8x11.mxd

APPENDIX C:
GEOTECHNICAL INVESTIGATION REPORT

KLEINFELDER
Bright People. Right Solutions.

September 29, 2010
File No. 112664.GEO

Mr. Peter Lum
Pacific Gas and Electric System Engineering
1919 Webster Street, Room 493
Oakland, California 94612

Subject: Geotechnical Investigation Report
Proposed PG&E Shepherd Substation
Fresno County, California

Dear Mr. Lum:

Kleinfelder is pleased to present the results of our geotechnical services performed for the proposed project at the Pacific Gas and Electric Company (PG&E) Shepherd Substation located on North Sunnyside Avenue, in Fresno County, California.

The purpose of the geotechnical investigation was to evaluate the subsurface conditions at the site in order to provide geotechnical recommendations for design and construction of the proposed project. Based on the present information, it is Kleinfelder's professional opinion that the proposed site is geotechnically suitable for construction of the proposed project provided the recommendations presented in this report are incorporated into the project design.

1410 F Street, Fresno, CA 93706 p | 559.486.0750 f | 559.442.5081

We appreciate the opportunity to be of service on this project. Please do not hesitate to contact the undersigned if you have any questions, comments, or require additional information.

Respectfully submitted,
KLEINFELDER WEST, INC.

Romeo R. Shiplee, EIT
Staff Engineer

Justin J. Kempton, PE, GE
Area Manager

Reviewed by:

Kenneth G. Sorensen, PE, GE
Senior Geotechnical Engineer

RRS:JJK:KGS:llp

KLEINFELDER
Bright People. Right Solutions.

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED PG&E SHEPHERD SUBSTATION
FRESNO COUNTY, CALIFORNIA

September 29, 2010

Prepared For:

Pacific Gas and Electric System Engineering
1919 Webster Street, Room 493
Oakland, California 94612

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED PG&E SHEPHERD SUBSTATION
FRESNO COUNTY, CALIFORNIA

Kleinfelder Job No.: 112664

Prepared by:

Romeo R. Shiplee, EIT
Staff Engineer

Justin J. Kempton, PE, GE
Area Manager

Kenneth G. Sorensen, PE, GE
Senior Geotechnical Engineer

KLEINFELDER WEST, INC.
1410 F Street
Fresno, California 93706
(559) 486-0750

September 29, 2010

KLEINFELDER
Bright People. Right Solutions.

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PLATES

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1 INTRODUCTION

1.1 GENERAL

The proposed project site is located north of Shepherd Avenue and west of North Sunnyside Avenue in Fresno County, California. Kleinfelder West, Inc. (Kleinfelder) was retained by Pacific Gas and Electric System Engineering to provide geotechnical engineering services for the project. The proposed site is shown on Plate 1, Site Vicinity Map. The Site Plan, presented on Plate 2, shows the proposed substation and the approximate boring locations.

This report includes recommendations related to the geotechnical aspects of project design. Conclusions and recommendations presented in this report are based on subsurface conditions encountered at the locations of the exploration, as well as the provisions and requirements outlined in the "Additional Services" and "Limitations" sections of this report. Recommendations presented herein should not be extrapolated to other areas or used for other projects without prior review.

1.2 PROJECT DESCRIPTION

The proposed site for the Shepherd Substation consists of an existing almond orchard with mature trees spaced in narrow rows approximately 25 feet on center.

Equipment planned for this facility includes:

- 115kv standard dead ends and rigid ring bus conductor support structures supported with cast-in-drilled hole (CIDH) piers.
- Two to three 45 MVA transformers and circuit breakers supported on structural slab or mat foundations. The maximum transformer weight is about 200 kips.
- A switchgear enclosure structure supported on a continuous perimeter foundation.

A new spill prevention control and countermeasures (SPCC) pond will be excavated at the southwest corner of the site. The yard surface will have asphalt paved roadways. It is understood that typical facility roads consist of 2 inches of asphalt concrete over a 4-

inch thick compacted Class 2 aggregate base layer for the pavement section. Earthwork is anticipated to be performed to provide a relatively level substation pad and proper drainage. Other than for the SPCC pond, cuts and fills are expected to be less than about 2 feet in vertical height.

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this investigation was to explore and evaluate the site subsurface conditions in order to develop geotechnical recommendations for project design and construction.

The authorized scope of work for this study was outlined in our proposal dated June 16, 2010 (File No. FRE10P135) and included the following tasks:

- Drilling and sampling of five (5) exploratory borings to depths of about 31½ to 51½ feet below the ground surface;
- Excavating two (2) test pits to depths of about 6 and 10 feet below the ground surface and conducting two (2) double-ring infiltration (DRI) tests at the proposed SPCC pond,
- Geotechnical laboratory testing of soil samples collected from the borings;
- Engineering analyses to develop geotechnical recommendations, and;
- Preparation of this report.

This report addresses the following items:

- ❑ A description of the proposed project, including a vicinity map showing the location of the site and a site plan showing the locations of the explorations for this study;
- ❑ A description of the site surface and subsurface conditions encountered during the field investigation, including logs of borings and test pits;
- ❑ A summary of the field exploration and laboratory testing programs;
- ❑ Discussion of regional and local geology, including faults, seismicity and liquefaction potential, seismic settlement, and associated effects;

- Recommended 2007 CBC seismic design criteria;
- Recommendations for site preparation and earthwork;
- Recommendations for shallow foundation design, including available bearing capacity of foundation soil for sustained and total combined loading and anticipated settlement;
- Recommendations for resistance of lateral loads on shallow foundations;
- Recommendations for axial capacity design of CIDH piers;
- Geotechnical parameters for use in L-Pile lateral analysis of CIDH piers;
- Recommendations for temporary excavations including OSHA soil type and shoring recommendations, if appropriate;
- Comments on the infiltration rates for the SPCC pond;
- Comments on the corrosion potential of on-site soils to buried metal and concrete;
- Recommendations to aid in the design of site drainage; and,
- Recommendations for plan review, grading observations, and compaction testing.

2 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

The field exploration program, conducted on August 13, 2010, included advancement of five (5) test borings and excavation of two (2) test pits to facilitate infiltration testing. Three (3) of the borings were drilled in the planned equipment areas to depths of about 31½ feet below the ground surface (bgs). One (1) boring was drilled in the area of the planned dead end structure to a depth of about 51½ feet bgs. One (1) boring was advanced in the vicinity of the proposed SPCC pond to a depth of 31½ feet bgs. The borings were advanced utilizing a CME 55, truck-mounted drill rig using a hollow-stem auger. Two test pits were excavated to depths of approximately 6 and 10 feet bgs with a rubber-tired backhoe equipped with a 24-inch wide bucket. The approximate locations of the test borings and test pits are indicated on the Site Plan, Plate 2.

The soils encountered in the borings and test pits were visually classified in the field and continuous logs were recorded. Relatively undisturbed samples were collected from the borings at selected depths by driving a 2.5-inch inside diameter (I.D.) split barrel sampler containing brass liners into the undisturbed soil with a 140-pound automatic hammer free falling a distance of 30 inches. The 2.5-inch I.D. sampler is in general conformance with American Society of Testing Materials (ASTM) D3550. Relatively undisturbed soil samples may experience some minor disturbance due to hammer impact, retrieval, and handling. In addition, a 1.4-inch I.D. Standard Penetration Test (SPT) sampler was driven at selected depths in general accordance with ASTM D1586 test procedures. The SPT sampler was used without liners. Resistance to sampler penetration was noted as the number of blows over the last 12 inches of sampler penetration on the boring logs. The blow counts listed on the boring logs have not been corrected for the effects of overburden pressure, rod length, sampler size, or hammer efficiency. Correction factors were applied to estimate the sample relative density descriptions noted in the boring logs. The consistency terminology used in the soil descriptions is based on ASTM D2488. Bulk samples were also obtained from auger cuttings at the boring locations. Each soil sample was classified in accordance with the Unified Soil Classification (USCS) system presented in ASTM D 2487 and D2488. Logs of the borings are attached in Appendix A. At the completion of fieldwork, the borings and test pits were backfilled with the soil cuttings.

2.2 FIELD AND LABORATORY TESTING

Sampler penetration rates, determined in general accordance with ASTM D1586, were used as an aid in evaluating the relative density, compression, and strength characteristics of the foundation soils.

Two (2) double-ring infiltration (DRI) tests were performed during the field exploration program in general accordance with ASTM D3385. The DRI tests were performed within the test pits at depths of approximately 6 and 10 feet bgs. The DRI test results are summarized in Section 5.7 of this report.

Kleinfelder performed laboratory tests on selected samples collected from the borings to evaluate physical and engineering characteristics of the site soils. The following laboratory tests were used to develop the design geotechnical parameters included in this report:

- Unit Weight (ASTM D2937)
- Moisture Content (ASTM D2216)
- Soluble Sulfate Content (California Test Method No. 417)
- Soluble Chloride Content (California Test Method No. 422)
- pH and Minimum Resistivity (California Test Method No. 643)
- Direct Shear (ASTM D3080)
- Plasticity Index (ASTM D4318)
- Material Passing No. 200 Sieve (ASTM D1140)
- Maximum Density/Optimum Moisture (ASTM D1557)

Test specimens for used for unit weight, moisture content, and direct shear tests were obtained from the 2.5-inch I.D. driven samples. Each test specimen was unique to the test performed. The dry density, moisture content, plasticity index, and material passing the No. 200 sieve test results are shown on the boring logs in Appendix A. The soluble

sulfate, soluble chloride, pH, and minimum resistivity results are presented in Section 5.8, Corrosion Potential. The other test results are provided in Appendix B.

3 SITE AND SUBSURFACE CONDITIONS

3.1 SURFACE CONDITIONS

The proposed substation site is currently occupied by an existing almond orchard with narrow rows of trees, spaced approximately 25 feet on center. The site is located about a half mile north of the intersection of Sunnyside and Shepard Avenues. The site area measures approximately 466 by 441 feet in plan dimensions, and is relatively flat. The south and west sides of the property are bounded by an adjacent almond orchard. The east side of the site is bounded by Sunnyside Avenue. The north side is bounded by an open field with annual grasses. The current ground surface elevation at the site is approximately 383 to 384 feet above mean sea level, based on the project datum.

3.2 SUBSURFACE SOIL CONDITIONS

The earth materials encountered at the site are alluvial soil deposits consisting predominantly of medium dense silty sand extending to depths of about 8 to 27½ feet bgs which are underlain by discontinuous layers of stiff sandy lean clay and medium dense to dense clayey sand.

The preceding soil descriptions provide a general summary of the subsurface conditions encountered during the field exploration program. For more thorough descriptions of the actual conditions encountered at specific boring or test pit locations, refer to the boring logs presented in Appendix A (Plates A-3 through A-9).

3.3 GROUNDWATER

Groundwater was encountered in Boring B-4 at a depth of approximately 40½ feet bgs. The four shallower borings did not encounter groundwater. The State of California Department of Water Resources, "Lines of Equal Elevation of Water in Wells" Spring 2006, indicates the depth to groundwater in the project site vicinity to be on the order of 40 to 50 feet bgs. It is possible that groundwater conditions at the site could change at some time in the future due to variations in the rainfall, groundwater withdrawal or recharge, construction activities, or other factors not apparent at the time the test

borings were explored. However, groundwater is presently not anticipated to effect design or construction.

4 GEOLOGIC CONDITIONS

4.1 REGIONAL GEOLOGY

The site is located in the eastern portion of the San Joaquin Valley in central California. The valley is a large northwestward trending, asymmetric structural trough that has been filled with as much as 6 vertical miles of sediment. The trough is situated between the Sierra Nevada Mountains on the east and the Coast Range Mountains on the west. Both of these mountain ranges were initially formed by uplifts that occurred during the Jurassic and Cretaceous periods of geologic time (greater than 65 million years ago). Renewed uplift began in the Sierra Nevada during late Tertiary time, and is continuing today.

4.2 AREA AND SITE GEOLOGY

The majority of the native sediments in the project area have been mapped (Fresno 2 degree geologic sheet) by the California Geological Survey (formerly Division of Mines and Geology, CDMG) as Holocene age alluvial fan deposits (Q_f).

4.3 LOCAL FAULTS

The site is located in a region traditionally characterized by low to moderate seismic activity, but with the potential for relatively high activity. The site is not in an Alquist-Priolo Earthquake Fault Zone and no known active faults traverse the site. The project site is located approximately 34 miles southwest of the Foothills Fault System, approximately 49 miles southwest of the Great Valley fault, and approximately 76 miles northeast of the San Andreas Fault. A major seismic event on these faults could cause ground shaking at the site.

4.4 SEISMICITY

4.4.1 Seismic Design Parameters

Seismic design information based upon the 2007 California Building Code (CBC) is presented below. The Maximum Considered Earthquake (MCE) mapped spectral

accelerations for 0.2 second and 1 second periods (S_S and S_1) were estimated based on Section 1613 of the 2007 CBC using the Java calculator provided at the USGS National Seismic Hazards Mapping Program (NSHMP) website. The mapped acceleration values and associated soil amplification factors (F_a and F_v) based on the 2007 CBC are presented in Table 4.4-1 below. Corresponding site modified (S_{MS} and S_{M1}) and design spectral accelerations (S_{DS} and S_{D1}) are also presented in Table 4.4-1. The Site Class is D.

TABLE 4.4-1
SEISMIC DESIGN PARAMETERS

Parameter	Value	2007 CBC Reference
S_S	0.467g	Section 1613.5.1
S_1	0.211g	Section 1613.5.1
Site Class	D	Table 1613.5.2
Seismic Design Category	D	Table 1613.5.6(2)
F_a	1.427	Table 1613.5.3(1)
F_v	1.978	Table 1613.5.3(2)
S_{MS}	0.666g	Section 1613.5.3
S_{M1}	0.418g	Section 1613.5.3
S_{DS}	0.444g	Section 1613.5.4
S_{D1}	0.278g	Section 1613.5.4

The peak horizontal ground acceleration (PHGA) based on the Maximum Considered Earthquake (MCE) is 0.27g. The design earthquake has a PHGA of 0.18g.

4.4.2 Liquefaction

In order for soil liquefaction due to ground shaking to occur, it is generally accepted that four conditions will exist:

- The subsurface soils are in a relatively loose state,
- The soils are saturated,
- The soils have low plasticity, and

- Ground shaking is of sufficient intensity to act as a triggering mechanism.

Based on the depth of groundwater, relative density of the subsurface soils, and evaluation based on Youd et al (2001), the anticipated cyclic stress associated with the design PHGA (0.18g) is not likely sufficient to result in liquefaction or seismically induced settlement.

Another type of seismically induced ground failure, which can occur as a result of seismic shaking, is dynamic compaction. Such phenomena typically occur in unsaturated, loose granular material or uncompacted fill soils. The subsurface conditions encountered in the borings advanced at the site are not generally considered conducive to such seismically induced ground deformation. Based on methods by Tokimatsu and Seed (1987), it is estimated no significant settlement (less than 0.2 inch) due to dynamic compaction would occur at the site during the design earthquake.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

The geotechnical conditions at the project site appear suitable for the proposed construction. It is anticipated that transformers and similar equipment will be founded on mat slab foundations. Reinforced concrete drilled piers are expected to be used to support the overhead switch gear and bus structures as well as dead end structures. Shallow spread foundations may be used to support auxiliary structures and control buildings, as necessary.

It is anticipated that site grading can be performed with conventional grading equipment and techniques. General recommendations regarding the geotechnical aspects of project earthwork are presented in subsequent sections of this report. All references to compaction, maximum density and optimum moisture are based on American Society of Testing and Materials (ASTM) Test Method D1557, unless otherwise noted.

5.2 SITE EARTHWORK

5.2.1 Stripping and Existing Tree Removal

All surface vegetation including existing trees should be removed along with their major root systems. This should include removal of all roots greater than ½ inch in diameter. The amount of soil lost or disturbed within tree removal areas will likely vary depending on the extent of root systems and the methods of removal.

To provide uniform support of proposed and future site improvements, it is recommended that soil disturbance from tree removal activities be mitigated by excavating to at least the depths of the major root systems (estimated at about 2 to 3 feet below existing grades) over the entire site. The intent is to enable compaction of all disturbed soils in a uniform manner across the site. Following removals, the exposed soils should be processed and compacted as recommended in Section 5.2.4 of this report. Excavated on-site soil can be reused as engineered fill provided it meets the criteria provided in Section 5.2.4.1. Organic materials, organic-laden soils, and debris

are not suitable for use as engineered fill and should be removed from proposed improvement areas.

5.2.2 Disturbed Soil, Undocumented Fill and Subsurface Obstructions

If not documented during clearing and demolition, initial site grading should include a reasonable search to locate soil disturbed by previous activities and tree removal, any undocumented fill soils and any abandoned underground structures, irrigation systems or utilities that may exist within the areas of construction. Any obstructions or deleterious materials should be removed from the project area. Special attention should be paid to potential irrigation systems on the property due to its past agricultural use. Any disturbed or loose soils, animal burrows, or undocumented fill encountered during grading should be over-excavated to expose firm native material.

5.2.3 Scarification and Compaction

After stripping and performing all necessary removals, exposed areas to receive fill should be scarified at least 8 inches below the exposed subgrade elevation. The subgrade soil should be uniformly moisture conditioned to slightly above the optimum moisture content and compacted to at least 90% of the maximum dry density.

5.2.4 Engineered Fill

5.2.4.1 Materials

All engineered fill soils should be free of organic materials, debris, or other deleterious materials and have a maximum particle size less than 3 inches in maximum dimension. Excavated on-site soil that is free of organic materials, debris, or other deleterious material, may be used as engineered fill.

Recommended requirements for imported engineered fill, as well as applicable test procedures to verify material suitability are provided in Table 5.2-1.

TABLE 5.2-1
ENGINEERED FILL REQUIREMENTS

Fill Requirement		Test Procedures	
		ASTM[1]	Caltrans[2]
Gradation			
Sieve Size	**Percent Passing**		
3 inch	100	C 136	202
¾ inch	70-100	C 136	202
No. 4	50-100	C 136	202
No. 200	20-70	C 136	202
Plasticity			
Liquid Limit	**Plasticity Index**		
<30	<12	D 4318	204
Organic Content			
No visible organics		---	---
Expansion Index			
20 or less		D 4829	---
Corrosion Potential			
Soluble Sulfates	<2000 ppm	---	417
Soluble Chloride	<300 ppm	---	422
Resistivity	>2000 ohm-cm	---	643

[1]*American Society for Testing and Materials Standards (latest edition)*
[2]*State of California, Department of Transportation, Standard Test Methods (latest edition)*

Any imported fill materials to be used for engineered fill should be sampled and tested by the project Geotechnical Engineer prior to being transported to the site.

5.2.4.2 Compaction Criteria

Soils used for engineered fill should be uniformly moisture conditioned to slightly above the optimum moisture content, placed in horizontal lifts less than 8 inches in loose thickness, and compacted to at least 90 percent relative compaction. Disking and/or blending will likely be required to uniformly moisture-condition soils used for engineered fill.

5.2.5 Construction Considerations

Should site grading be performed during or subsequent to wet weather, near-surface site soils may be significantly above the optimum moisture content. These conditions could hamper equipment maneuverability and efforts to compact site soils to the recommended compaction criteria. Disking to aerate, chemical treatment, replacement with drier material, stabilization with a geotextile fabric or grid, or other methods may be required to mitigate the effects of excessive soil moisture and facilitate earthwork operations. The project Geotechnical Engineer should be consulted to provide specific recommendations for wet soil mitigation, if needed at the time of construction.

5.3 TEMPORARY EXCAVATIONS

5.3.1 General

All excavations must comply with applicable local, state, and federal safety regulations including the current the Occupational Safety & Health Administration (OSHA) Excavation and Trench Safety Standards. Construction site safety generally is the responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. Kleinfelder is providing the information below solely as a service to the client. Under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

5.3.2 Temporary Excavations

The near surface soils encountered during the field investigation consisted predominantly of silty sand. These soils would likely be considered as Type B or C soils with regard to OSHA regulations.

5.4 SHALLOW FOUNDATIONS

5.4.1 General

The proposed transformers, inverters, and other equipment may be supported by mat foundations supported on engineered fill prepared as recommended herein. Other structures such as control buildings and similar structures may be supported by conventional shallow spread foundations bearing in engineered fill. Recommendations are provided below for design of mat slab and spread footing foundation systems. The following recommendations are based on the assumption that the recommendations in Section 5.2, "SITE EARTHWORK", have been implemented.

5.4.2 Spread Foundations

5.4.2.1 Allowable Bearing Pressures

We recommend spread footings constructed of reinforced concrete and founded on engineered fill be used for support of buildings and similar structures. Perimeter spread footings for buildings with interior floor slabs should be continuous. Interior column foundations may be continuous of isolated. Continuous footings should be a minimum of 12 inches wide and embedded a minimum of 12 inches below the lowest final adjacent subgrade[1]. Isolated footings should be a minimum of 24 inches wide and embedded a minimum of 12 inches below the lowest final adjacent subgrade. An allowable bearing pressure of 2,000 pounds per square foot (psf) may be used for design of spread foundations with the above minimum dimensions.

The allowable bearing pressure will vary with footing width and embedment. Therefore, the minimum allowable bearing pressure provided above may be increased by 500 psf for each additional foot of width and by 1,000 psf for each additional foot of embedment up to a maximum allowable bearing pressure of 4,000 psf.

---

[1] **Within this report, subgrade refers to the top surface of undisturbed native soil, native soil compacted during site preparation, or engineered fill.*

The allowable bearing pressure provided above is a net value. Therefore, the weight of the foundation (that extends below grade) may be neglected when computing footing contact pressures. The allowable bearing pressure applies to dead plus live loads, includes a calculated factor of safety of at least 3, and may be increased by ⅓ for short-term loading due to wind or seismic forces.

5.4.2.2 Estimated Settlements

Total settlement of an individual foundation will vary depending on the plan dimensions of the foundation and the actual load supported. Based on anticipated foundation dimensions and loads, we estimate maximum settlement of foundations designed and constructed in accordance with the preceding recommendations to be on the order of ½-inch. Differential settlement between similarly loaded, adjacent footings is expected to about half of the total settlement provided footings are founded on similar materials (e.g., all on engineered fill, native soil). Settlement of all foundations is expected to occur rapidly and should be essentially complete shortly after initial application of the loads.

Footings may experience an overall loss in bearing capacity or an increased potential to settle where located in close proximity to existing or future utility trenches and/or foundations. Furthermore, stresses imposed by the footings on the utility lines may cause excessive cracking, collapse and/or a loss of serviceability. To reduce these risks, footings should extend below a 2(h): 1(v) plane projected upward from the closest bottom edge of the adjacent utility trench or foundations.

5.4.2.3 Construction Considerations

Prior to placing steel or concrete, footing excavations should be cleaned of all debris, loose or soft soil, and water. All footing excavations should be observed by the project Geotechnical Engineer just prior to placing steel or concrete to verify the recommendations contained herein are implemented during construction.

5.4.3 Mat Foundations

Reinforced concrete mat foundations may be used to support transformers and various equipment. We anticipate mat slabs may be as large as about 20 by 40 feet in plan

dimensions. We understand typical transformer weights are expected to be on the order of 700 to 800 kips.

5.4.3.1 Mat Foundation Subgrades

Subgrades to support mat foundations should be constructed as recommended in Section 5.2 of this report. We recommend mat slabs be underlain by at least 6 inches of Caltrans Class 2 aggregate base material. The material should be compacted to at least 95 percent relative compaction at a moisture content slightly above optimum.

5.4.3.2 Allowable Bearing Pressure

An allowable bearing pressure of 1,000 pounds per square foot (psf) should be used for design of mat slab foundations supported on engineered fill prepared as recommended in this report. If higher loads or larger mat slabs are needed than mentioned above, the allowable bearing pressure and anticipated settlement should be evaluated on a case-by-case basis.

The allowable bearing pressure provided above is a net value. Therefore, the weight of the foundation (that extends below grade) may be neglected when computing dead loads. The allowable bearing pressure applies to dead plus live loads, includes a calculated factor of safety of at least 3, and may be increased by 1/3 for short-term loading due to wind or seismic forces.

Mat foundations should have their bearing surfaces situated below or beyond an imaginary 2(h):1(v) plane projected upward from the nearest bottom edge of adjacent footings, parallel utility trenches, or other excavations.

5.4.3.3 Anticipated Settlement

Post construction settlement of mat foundations will be dependent on the slab dimensions and loadings. Settlement of mat foundations designed and supported as recommended herein is expected to be on the order of ¾ inch. Differential settlement between the outer edges and center of the slab is expected to be about half the total settlement.

5.4.3.4 Modulus of Subgrade Reaction

A modulus of subgrade reaction, K_{V1} = 250 pounds per cubic inch (based on a one square foot bearing plate) can be used for mat slab subgrades prepared as recommended in this report. The subgrade modulus is applicable for consideration of static loads with subgrade deformations within an elastic range.

5.4.4 Resistance to Lateral Loads on Shallow Foundations

Resistance to lateral loads (including those due to wind or seismic forces) may be provided by frictional resistance between the bottoms of concrete spread or mat foundations and the underlying soils, and by passive soil pressure acting against the sides of the foundations. An allowable coefficient of friction of 0.40 may be used between cast-in-place concrete foundations and the underlying soil. This value contains a factor of safety of approximately 2 and assumes good contact between a concrete foundation and the underlying soil. Passive pressure available in engineered fill may be taken as equivalent to the pressure exerted by a fluid weighing 350 pounds per cubic foot (pcf). Passive pressure should be neglected in the top one foot of soil unless confined by slabs or pavements. This value includes a factor of safety of approximately 1.5, which generally corresponds to a predicted lateral deflection of less than about ½ inch.

5.5 DRILLED PIER FOUNDATIONS

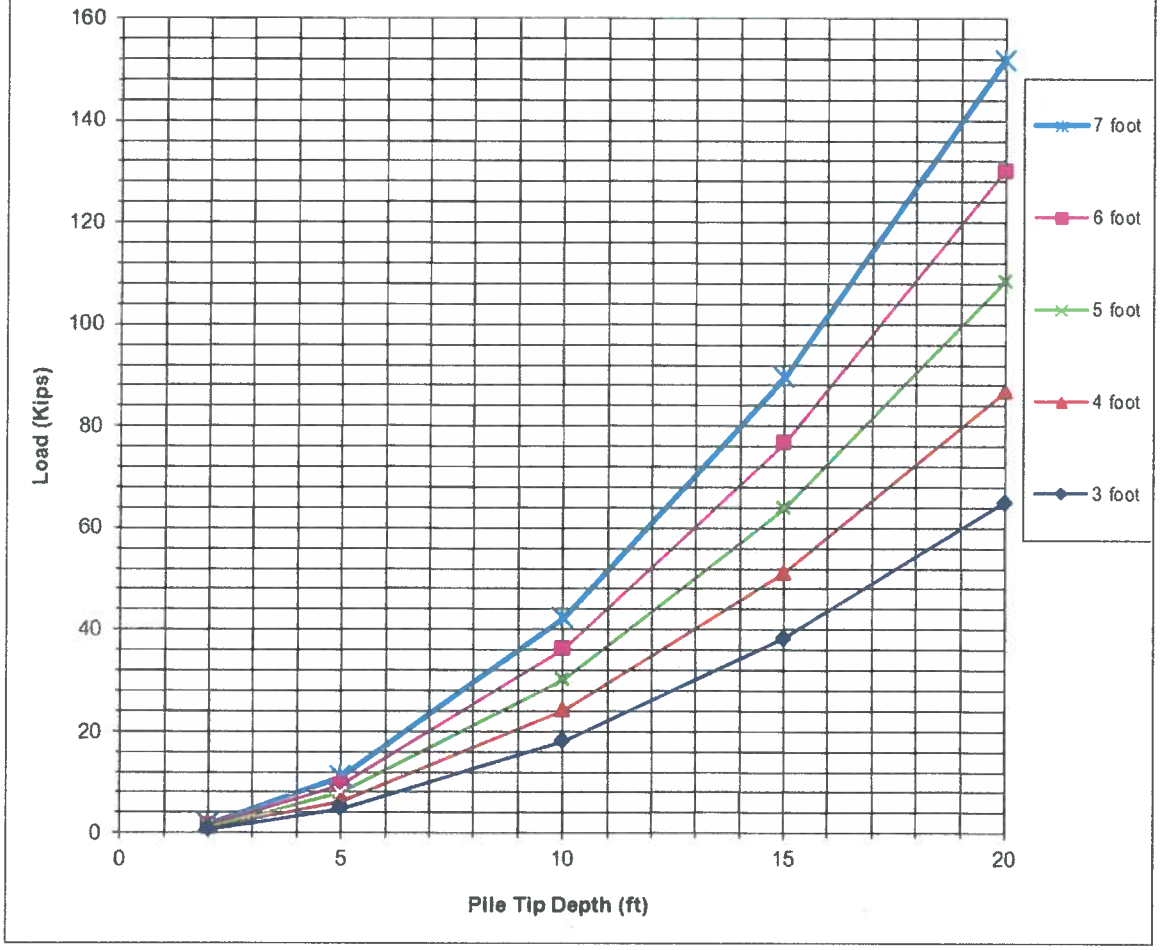
5.5.1 Axial Capacities

5.5.1.1 Static Loading

Cast-in-drilled-hole (CIDH) piers are considered appropriate for support of dead-end structures, towers, or other applicable structures. Axial loads imposed by the structures can be supported by the frictional capacity of the pier. Figure 5.5-1 presents the allowable downward capacity for 3, 4, 5, 6, and 7-foot diameter CIDH piers. The allowable downward (compressional) capacity may be increased by one third for the total of all loads, including wind. The uplift capacity of piers should be taken as 70% of the compressive frictional capacity plus the weight of the pier. A factor of safety of 3

was used on skin friction to develop the allowable downward capacity. End bearing was neglected due to strain incompatibility and construction issues.

Figure 5.5-1
Allowable Frictional Axial Capacity vs Pile Tip Depth



The frictional capacity (compression or uplift) is proportional to the pier diameter at a corresponding depth.

The total settlement of friction piers, designed in accordance with the above recommendations, should be about 0.002 times the pier diameter. The concrete mix and reinforcement for CIDH piers should be designed by the project structural engineer.

5.5.2 Lateral Capacity

The ability of reinforced concrete drilled piers to resist lateral loads applied at the tops of the piers can be evaluated using LPILE (computer software developed by Ensoft Inc.). The geotechnical parameters summarized in Table 5.5-1 are based on a generalized soil profile and can be used for evaluation of lateral loading of piles at the site.

TABLE 5.5-1
SOIL INPUT PARAMETERS FOR LPILE

Depth (ft)		p-y	γ'	ϕ	k
From	To	Curve	(pci)	(°)	(psi)
0	5	Sand	0.069	34	190
5	25	Sand	0.069	34	250

5.5.3 Construction Considerations

5.5.3.1 Anticipated Excavation Conditions

Based on the subsurface conditions encountered in the borings and the anticipated depths of the proposed drilled pier foundations (i.e., about 15 to 20 feet below the ground surface), caving of drilled pier excavations is not expected for piers that are less than about 4 feet in diameter. Larger diameter piers may be subject to caving especially within the upper silty sand soils. Groundwater levels are expected to be below the bottoms of the pier shafts. However, a clay layer exists at depths between about 8 and 27½ feet bgs that could trap infiltrating surface water seasonally and create a perched groundwater condition. This condition could cause caving of drilled pier excavations.

5.5.3.2 Groundwater and Caving

If perched groundwater or caving conditions are encountered in the pier holes, use of temporary casings or slurry drilling methods should be considered. Such pier drilling methods should be attempted only by experienced foundation drilling contractors. Otherwise, severe caving, loss of pier capacity, and other serious conditions could result.

We recommend steel reinforcement and concrete be placed on the same day of completion of each pier excavation. Additionally, drilled excavations should be scheduled to allow concrete in each pier to set over night before drilling adjacent holes that are closer than 4 diameters center-to-center.

Concrete used for pier construction should be discharged vertically into the drilled holes to reduce aggregate segregation. Under no circumstances during pile construction should concrete be allowed to free-fall against either the steel reinforcement or the sides of the excavation.

In order to develop the design skin friction values provided above, concrete used for CIDH pile construction should have a slump ranging from 4 to 6 inches if placed in a dry shaft without temporary casing, and from 6 to 8 inches if temporary casing or slurry drilling methods are used. The concrete mix should be designed with appropriate admixtures and/or water/cement ratios to achieve these recommended slumps. Adding water to a conventional mix to achieve the recommended slump should not be allowed. For concrete mixes with slumps over 6 inches, vibration of the concrete during placement is generally not recommended as aggregate settlement may result in the lack of aggregate within the upper portion of the pier. Careful vibration of the concrete around anchor bolt assemblies is recommended.

Groundwater was not encountered during our explorations on this site. However, if more than 6 inches of water or drilling fluids are present in the pier excavations during concrete placement, concrete should be placed into the hole using tremie methods. Tremie concrete placement should be performed in accordance with ACI 304R. The tremie pipe should be rigid and remain several feet below the surface of the in-place concrete at all times to maintain a seal between the water or slurry and the fresh concrete. The upper concrete seal layer will likely become contaminated with excess water and soil as the concrete is placed and should be removed to expose uncontaminated concrete during or immediately following completion of concrete placement. It has been our experience that the concrete seal layer may be on the order of 3 to 5 feet in thickness but will depend on the pile diameter, amount of water seepage, and construction workmanship.

We recommend concrete used for tremie construction have a slump of 6 to 8 inches and a minimum cement content of 6 sacks per cubic yard. The concrete mix should be

designed with an appropriate water/cement ratio for the design strength and use water reducing/plasticizing admixtures to achieve the recommended slump. Adding water to a conventional mix to achieve the recommended slump should not be allowed. Vibration of pier concrete under water during placement is generally not recommended as it may result in contamination of the concrete and/or cause aggregate settlement within the pier. Careful vibration of the tops of the piles following removal of the seal layer is recommended to consolidate the concrete around anchor bolt assemblies.

5.5.4 Construction Observation

The allowable axial capacity provided in Figure 5.5-1 is based on the frictional capacity of the soil and no end-bearing component. As such, inspection of the pile bottom is not required.

Consistent with Chapter 17 of the 2006 IBC/2007 CBC, CIDH pier borings should be inspected and approved by the geotechnical engineer prior to installation of reinforcement. Concrete placement by pumping or tremie tube to the bottoms of the pier borings is recommended. Sufficient space should be provided in the pier reinforcement cage during fabrication to allow the insertion of a pump hose or tremie tube for concrete placement. The pier reinforcement cage should be installed and the concrete pumped immediately after drilling is completed.

5.6 SITE PAVEMENTS

Design of pavement sections was not a part our scope of work for this project. However, a typical pavement section has been provided by PG&E for evaluation. The section includes 2 inches of asphalt concrete over 4 inches of Caltrans Class 2 aggregate base material. It is our opinion that this pavement section is minimal for light automobile traffic and is not adequate to support typical PG&E service vehicles and line trucks without excessive cracking and surface deformation.

In equipment access areas, consideration should be given to the use of thicker asphalt concrete and aggregate base sections. Alternatively, unpaved access ways could be constructed using at least 12 inches of Caltrans Class 2 aggregate base material underlain by a stabilization fabric (Mirafi 500X or equal). The subgrade soils and aggregate base materials should be prepared as recommended in Section 5.2 of this

report, and be compacted to at least 95 percent relative compaction at a moisture content slightly above optimum. The stabilization fabric should be laid out and overlapped in accordance with the manufacturer's instructions.

If desired, Kleinfelder can evaluate appropriate pavement sections for various design lives based on the anticipated vehicle loading conditions.

5.6.1 Construction Considerations

In the event unstable (pumping) subgrades are encountered within planned pavement areas, it is recommended a heavy, rubber-tired vehicle (typically a loaded water truck) be used to test the load/deflection characteristics of the finished subgrade materials. It is recommended this vehicle have a minimum rear axle load (at the time of testing) of 16,000 pounds with tires inflated to at least 65-psi pressure. If the tested surface shows a visible deflection extending more than about 6 inches from the wheel track at the time of loading, or a visible crack remains after loading, corrective measures should be implemented. Such measures could include disking to aerate, chemical treatment, replacement with drier material, or other methods. It is recommended Kleinfelder be retained to assist in developing which method (or methods) would be applicable for this project.

5.7 INFILTRATION TESTS

Data collected from DRI tests conducted in the two test pits in the area of the proposed SPCC pond are presented in Table 5.7-1. No factors of safety have been applied. Infiltration tests were performed in general accordance to ASTM D3385.

TABLE 5.7-1
INFILTRATION TEST RESULTS

Location	Depth (feet)	Soil Type	Percolation Rate	Infiltration Rate
			min / inch	feet / day
TP-1	6	SM	74	1.6
TP-2	10	SM	74	1.6

Field exploration performed in the area of the basin encountered fine to coarse grained silty sand material in the upper 20 feet with trace amounts of clay. More detailed descriptions of the subsurface soils encountered are shown on the boring log for Boring B-5 on Plate A-7 in Appendix A.

The small scale testing from the double-ring infiltrometer cannot model the effects that interbedded soil layering has on large area pond infiltration. In using the double-ring data to estimate large area infiltration, it is necessary to apply some type of reduction factor, which is usually based on observation and/or water level drop measurements from large area ponds. For example, the EPA suggests using 2 to 4 percent of the small scale test result. Recent testing at some 30-acre ponds provided similar relationships (3.2%) between double-ring tests and drop in measurements.

Pond maintenance procedures should consider skimming and removal of any sediment build-up. Such an approach will tend to optimize infiltration. Bottom disking and/or ripping will tend to gradually increase fines content of the bottom soil and likely lead to long-term reduction of infiltration rates.

5.8 CORROSION POTENTIAL

Chemical analyses were performed on a sample of near surface soils to estimate pH, minimum resistivity, soluble sulfate content, and soluble chloride content in general accordance with Caltrans Standard Test Methods No. 643 (pH and resistivity), No. 417 (sulfates), and No. 422 (chlorides). The results of the corrosivity testing are provided in Table 5.8-1.

TABLE 5.8-1
CORROSION TEST RESULTS

Sample ID	Sulfates (ppm)	Chloride (ppm)	pH	Minimum Resistivity (ohm-cm)
B-3@0-5 feet	5.5	41.9	7.3	6,000

The test results suggest that relatively low levels of soluble sulfate content and low levels of soluble chloride content are present in on-site soils. Normal Type II cement is anticipated to be adequate in foundation concrete that comes in contact with the foundation soils.

The minimum electrical resistivity is generally representative of an environment that could be moderately corrosive to buried, unprotected metals. Corrosion is dependent upon a complex variety of conditions, which are beyond typical geotechnical engineering practice. Kleinfelder does not practice corrosion engineering. It is recommended that a competent corrosion engineer evaluate the corrosion potential of the site to the proposed project, to recommend further testing as required, and to provide specific corrosion mitigation methods appropriate for the project. It is recommended that specific testing be performed once site-grading activities are near completion to provide a better assessment of the actual soils present in the areas of interest.

It should be noted that the resistivity is a minimum value associated with potential future moisture increases. The value noted is not appropriate for use in evaluating any potential grounding system.

5.9 SITE DRAINAGE AND MOISTURE PROTECTION

Foundation, concrete slab, and pavement performance depends greatly on how well runoff waters drain from the site. This drainage should be maintained both during construction and over the entire life of the project. The ground surface around structures should be graded so that water flows rapidly away from structures without ponding. The surface gradient needed to do this depends on the surface conditions (i.e., surfacing, landscaping, pavements, etc.).

In general, the elevation of exterior grades should not be higher than the elevation of the subgrade beneath interior floor slabs to help prevent water intrusion beneath them. All utility trenches that pass beneath perimeter building foundations should be backfilled with compacted non-pervious fill material or a lean concrete trench plug to reduce the potential for external water to migrate beneath the building through the utility trenches. Special care should be taken during installation of sub-floor water and sewer lines to reduce the possibility of leaks.

6 ADDITIONAL SERVICES

6.1 PLANS AND SPECIFICATION REVIEW

It is recommended Kleinfelder be retained to review preliminary foundation and earthwork plans and specifications. It has been Kleinfelder's experience that this service provides an opportunity to review whether or not the recommendations have been properly interpreted and to correct possible misunderstandings of the recommendations prior to the start of construction. In the event Kleinfelder is not retained to perform this recommended review, Kleinfelder will assume no responsibility for misinterpretation of the recommendations.

6.2 CONSTRUCTION OBSERVATION AND TESTING

It is recommended that Kleinfelder be retained to provide observation and testing services during site earthwork and construction of foundations. This will allow us the opportunity to compare actual subsurface soil conditions with those encountered during the field exploration and, if necessary, to provide supplemental recommendations, if warranted due to unanticipated subsurface conditions.

7 LIMITATIONS

Recommendations contained in this report are based on the field observations, subsurface explorations, laboratory tests, and present knowledge of the proposed construction, as described in this report. It is possible that soil conditions vary between or beyond the points explored. If soil or groundwater conditions are encountered during construction that differ from those described herein, Kleinfelder should be notified immediately in order that a review may be made and any supplemental recommendations provided. If the scope of the proposed construction changes from that described in this report, the recommendations should also be reviewed. Kleinfelder has not reviewed the final grading plans or foundation plans for the project.

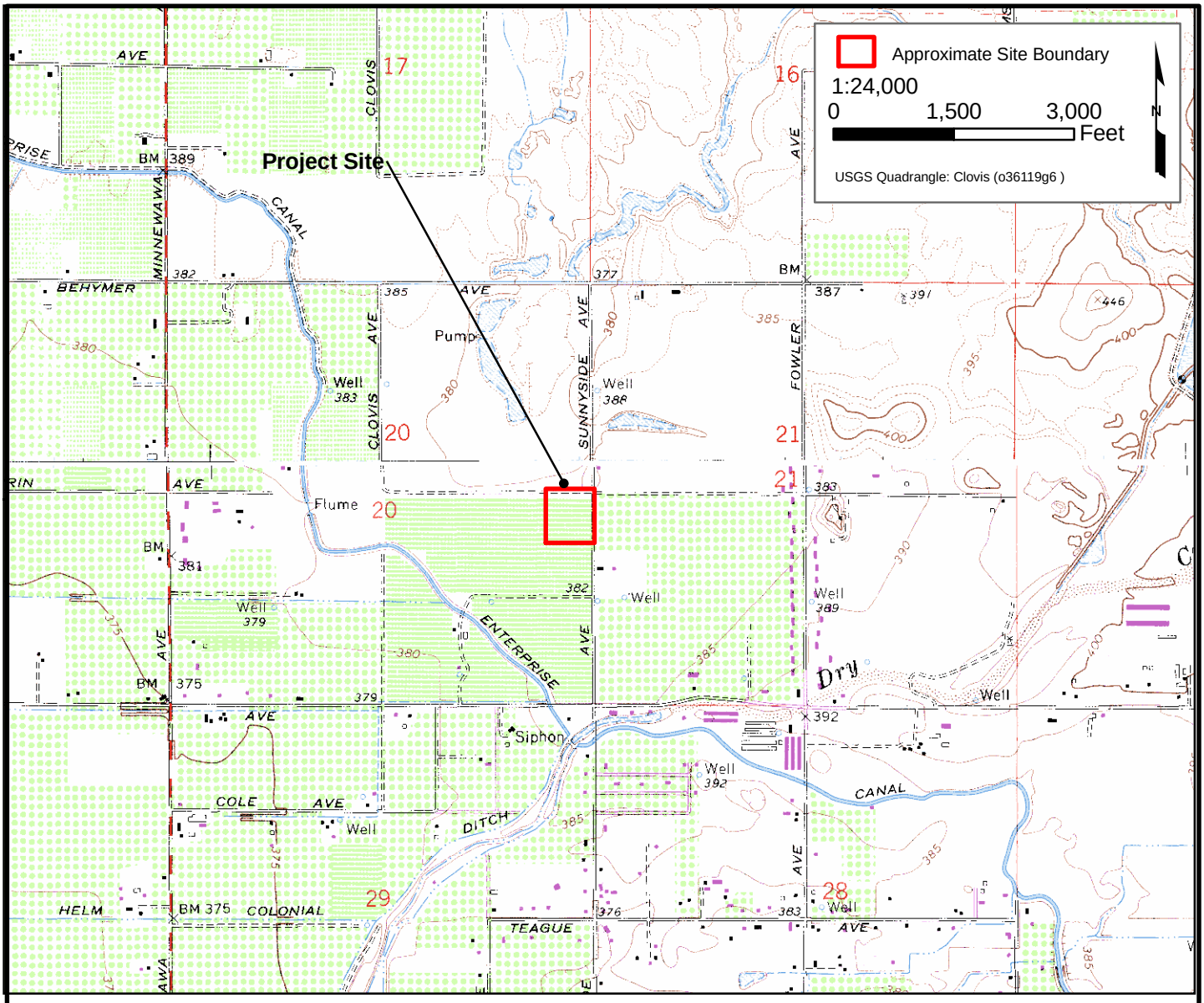
Corrosion recommendations are preliminary. Kleinfelder is not a corrosion engineering consultant. Specific recommendations for corrosion protection should be obtained from a corrosion specialist.

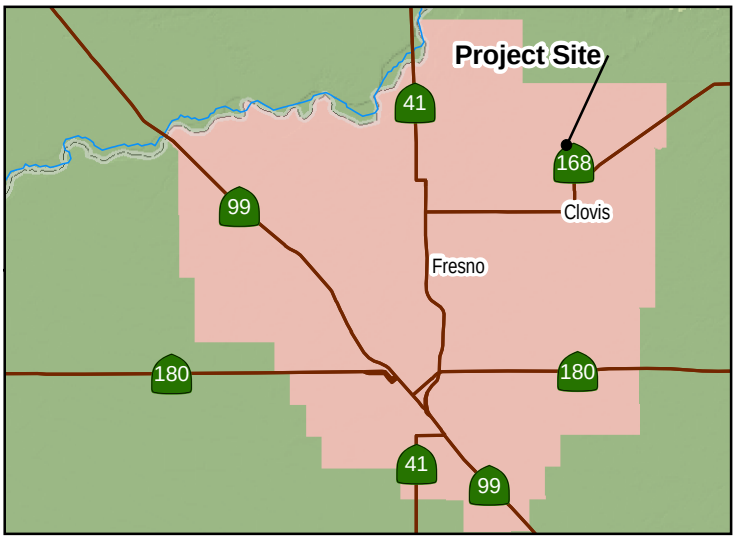
Kleinfelder has strived to present the findings, conclusions and recommendations in this report in a manner consistent with the standards of care and skill ordinarily exercised by members of this profession practicing under similar conditions in Fresno County, California, and at the time the services were performed. No warranty, express or implied, is made. The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by Kleinfelder during Project construction in order to evaluate compliance with the recommendations and/or to provide supplemental recommendations, as needed, if anticipated subsurface conditions are encountered.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance, but in no event later than one year (without review) from the date of the report. Land use, site conditions or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party, and client agrees to

defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.

The scope of the geotechnical services did not include any environmental site assessment for the presence or absence of hazardous/toxic materials. Kleinfelder will assume no responsibility or liability whatsoever for any claim, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.





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PROJECT NO.	112664
DRAWN:	09/17/10
DRAWN BY:	V.Oceguera
CHECKED BY:	R.Shilee
FILE NAME:	112664_P1_09/17/10

Site Vicinity Map

PG&E Substation
Shepherd Avenue and Sunnyside Avenue
Clovis, California

PLATE
1

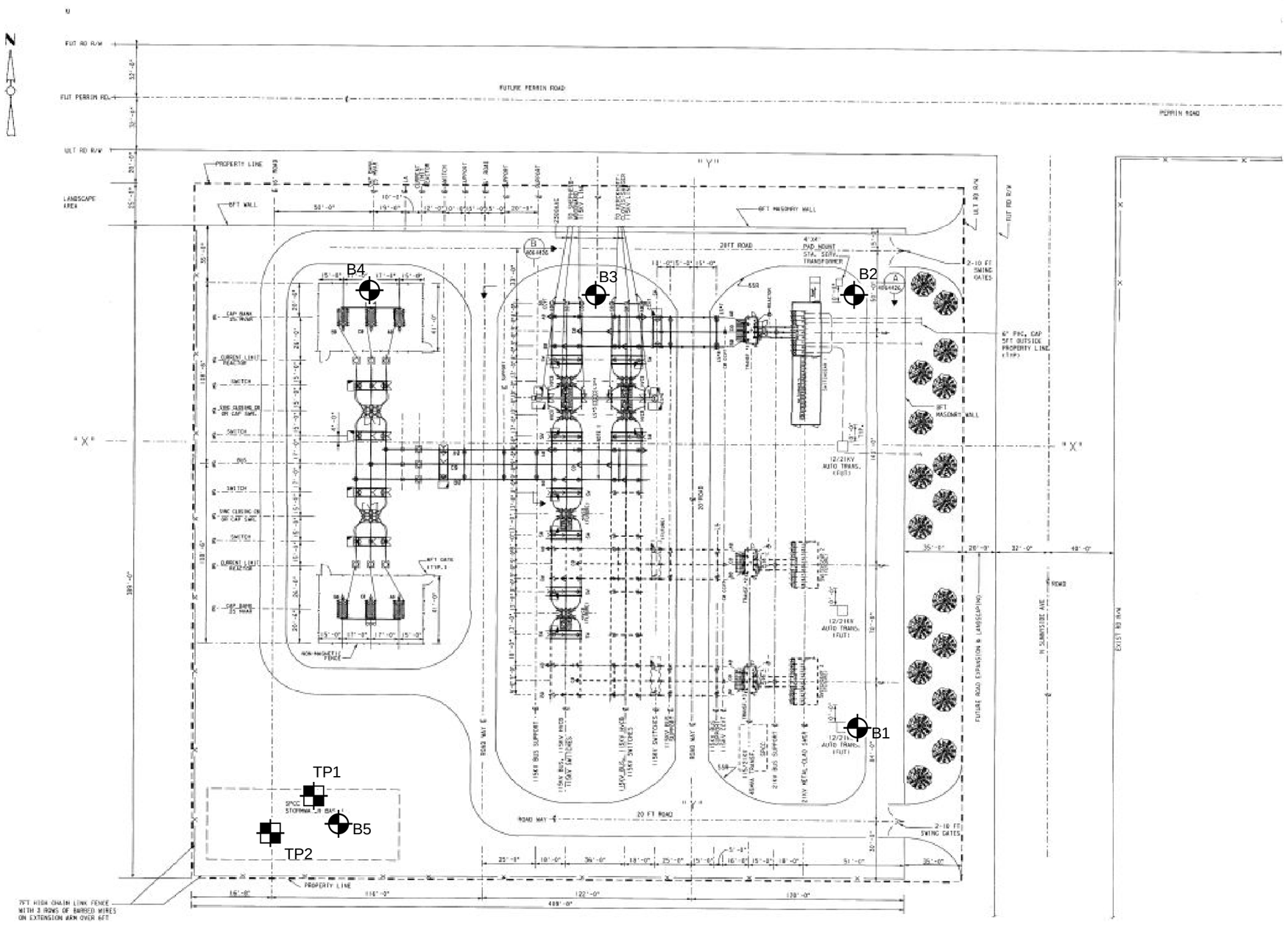

Image Source: PG&E

Approximate Boring Location

Approximate Test Pit Location

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PROJECT NO.	112664
DRAWN:	09/17/10
DRAWN BY:	V.Oceguera
CHECKED BY:	R.Shiplee
FILE NAME:	112664_P2_091710

Site Plan

PG&E Substation
Shepherd Avenue and Sunnyside Avenue
Clovis, California

PLATE **2**

LOG SYMBOLS

BULK / BAG SAMPLE	
MODIFIED CALIFORNIA SAMPLER (2 1/2 inch outside diameter)	
CALIFORNIA SAMPLER (3 inch outside diameter)	
STANDARD PENETRATION SPLIT SPOON SAMPLER (2 inch outside diameter)	
NX SIZE CORE BARREL	
CONTINUOUS SAMPLER (3 inch outside diameter)	
WATER LEVEL (level after completion)	
WATER LEVEL (level where first encountered)	
SEEPAGE	
	-4 PERCENT FINER THAN THE NO. 4 SIEVE (ASTM Test Method C 136)
	-200 PERCENT FINER THAN THE NO. 200 SIEVE (ASTM Test Method C 117)
	LL LIQUID LIMIT (ASTM Test Method D 4318)
	PI PLASTICITY INDEX (ASTM Test Method D 4318)
	DS DIRECT SHEAR (ASTM Test Method D 3080)
	COL COLLAPSE POTENTIAL
	UC UNCONFINED COMPRESSION
	MC MOISTURE CONTENT
	NFGWE NO FREE GROUND WATER ENCOUNTERED

GENERAL NOTES

1. **Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.**
2. **No warranty is provided as to the continuity of soil conditions between individual sample locations.**
3. **Logs represent general soil conditions observed at the point of exploration on the date indicated.**
4. **In general, Unified Soil Classification designations presented on the logs were evaluated by visual methods only. Therefore, actual designations (based on laboratory tests) may vary.**
5. **A temporary benckmark for relative elevation was located at:**

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Date:	File Number:

LOG KEY
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
A-1

KEYLOGG 112664.GPJ 9/23/10

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487)

MAJOR DIVISIONS				GRAPHIC LOG		TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	GRAVELS (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVELS WITH <5% FINES	Cu≥4 and 1≤Cc≤3		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/or 1>Cc>3		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5 to 12% FINES	Cu≥4 and 1≤Cc≤3		GW-GM	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/or 1>Cc>3		GP-GM	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH >12% FINES			GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/or 1>Cc>3		SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5 to 12% FINES	Cu≥6 and 1≤Cc≤3		SW-SM	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/or 1>Cc>3		SP-SM	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH >12% FINES			SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES
FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid limit less than 50)				ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY,
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
					CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
					OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid limit greater than 50)				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
					CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
					OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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Drafted By: R. Shiplee
Date: 9/23/2010
Project No.: 112664
File Number:

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487)
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
A-2

USCS (2487) 112664.GPJ KLEINFELDER FRESNO.GDT 9/23/10

Surface Conditions: Flat Bare Soil

Groundwater: No free groundwater encountered.

Method: Hollow Stem Auger

Equipment: CME 45

Date Completed: 8/13/2010

Logged By: R. Shiplee

Total Depth: 31.5 feet

Boring Diameter: 6" H.S.

Depth (feet)	Sample Type	Sample No.	FIELD: Blows/foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
													SILTY SAND (SM) - dark brown, moist, dense, fine to medium grained, some cementation.
			46		70.0	8.0							
5			7										... medium dense, sample contains rootlets, no cementation.
10			56/6"		122.3	8.2							... red brown, moist, very dense, fine to coarse.
15			27										... medium dense, trace clay, fine grained.
													SANDY LEAN CLAY (CL) - red brown, moist, very stiff, fine grained sand.
20			49							57			
25			20										
													SILTY SAND (SM) - red brown to gray, moist, medium dense, fine to coarse grained.
30			15										
35													**Notes:** **1.) Bottom of boring at 31.5 feet.** **2.) No free groundwater encountered.** **3.) Boring backfilled with soil cuttings 8/13/2010.**

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Drafted By:
Date: 9/23/2010
Project No.: 112664
File Number:

LOG OF BORING B-1
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
1 of 1
A3

P-LOG_2006 BLOWS PER FOOT 112664.GPJ KA_2008_SAC.GDT 9/23/10

Surface Conditions: Flat Bare Soil

Groundwater: No free groundwater encountered.

Method: Hollow Stem Auger

Equipment: CME 45

Date Completed: 8/13/2010

Logged By: R. Shiplee

Total Depth: 31.5 feet

Boring Diameter: 6" H.S.

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
0													**SILTY SAND (SM) -** red brown, moist, medium dense, fine to medium grained.
			3										
5			45		121.3	11.7							... fine to coarse grained, dense.
10			36										
15			79		123.3	14.1							... very dense, trace clay.
20			20										**CLAYEY SAND (SC) -** red brown, moist, medium dense, fine to coarse grained sand.
25			46										**CLAYEY SILT with SAND (ML) -** gray, moist, firm, fine sand.
30			32										**SILTY SAND (SM) -** brown, moist, dense, fine to coarse grained.
35													**Notes:** **1.) Bottom of boring at 31.5 feet.** **2.) No free groundwater encountered.** **3.) Boring backfilled with soil cuttings 8/13/2010.**

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Drafted By:

Date: 9/23/2010

Project No.: 112664

File Number:

LOG OF BORING B-2
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
1 of 1
A4

P-LOG_2006 BLOWS PER FOOT 112664.GPJ KA_2008_SAC.GDT 9/23/10

Surface Conditions: Flat Bare Soil

Groundwater: No free groundwater encountered.

Method: Hollow Stem Auger

Equipment: CME 45

Date Completed: 8/13/2010

Logged By: R. Shiplee

Total Depth: 31.5 feet

Boring Diameter: 6" H.S.

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
													SILTY SAND (SM) - red brown, moist, medium dense, fine to coarse grained, trace clay with rootlets.
			12		120.8	11.4							
5			16										... no rootlets, no clay, some cementation.
10			65		112.1	16.4							... very dense.
15			14										... brown, medium dense, fine grained.
20			60										... red brown, moist, very dense, trace clay.
25			30										... dense.
													CLAYEY SAND (SC) - red brown, moist, very dense, fine to coarse grained.
30			50/6"										**Notes:** **1.) Bottom of boring at 31.5 feet.** **2.) No free groundwater encountered.** **3.) Boring backfilled with soil cuttings 8/13/2010.**
35													

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Drafted By:

Date: 9/23/2010

Project No.: 112664

File Number:

LOG OF BORING B-3
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
1 of 1
A5

P-LOG_2006 BLOWS PER FOOT 112664.GPJ KA_2008_SAC.GDT 9/23/10

Surface Conditions: Flat Bare Soil

Groundwater: Free groundwater encountered at 40.5 feet.

Method: Hollow Stem Auger

Equipment: CME 45

Date Completed: 8/13/2010

Logged By: R. Shiplee

Total Depth: 51.5 feet

Boring Diameter: 6" H.S.

Depth (feet)	Sample Type	Sample No.	Blows/foot	Pocket Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
													SILTY SAND (SM) - dark brown, moist, loose, fine to medium grained.
			2										
5					110.1	16.2							
			4										... fine to coarse grained.
													SANDY LEAN CLAY (CL) - red brown, moist, firm, fine to coarse grained.
10			15										
15					118.5	14.0							
			31										
20							44	28					
			13										
													CLAYEY SAND (SC) - red brown, moist, dense, fine to coarse grained.
25					117.0	14.3							
			33										
30													**SANDY LEAN CLAY (CL)** - red brown, moist, firm, fine to medium grained.
			26										
35													

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Date: 9/23/2010

Project No.: 112664

File Number:

LOG OF BORING B-4
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
1 of 2
A6

P-LOG_2006 BLOWS PER FOOT 112664.GPJ KA_2008_SAC.GDT 9/23/10

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%) Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
			22		114.3	16.3						...increased sand content.
40			13				27	9	28			**CLAYEY SAND (SC)** - red brown, wet, medium dense, fine to coarse grained.
45			33		66.6	55.5						**SANDY LEAN CLAY (CL)** - gray, wet, firm to hard, fine grained.
50			50/6"									... red brown, fine to coarse grained.
55												**Notes:** **1.) Bottom of boring at 51.5 feet.** **2.) Free groundwater encountered at 40.5 feet.** **3.) Boring backfilled with soil cuttings 8/13/2010.**
60												
65												
70												
75												

P-LOG_2006 BLOWS PER FOOT 112664.GPJ KA_2008_SAC.GDT 9/23/10

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Project No.: 112664
File Number:

LOG OF BORING B-4
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
2 of 2
A6

Surface Conditions: Flat Bare Soil

Groundwater: No free groundwater encountered.

Method: Hollow Stem Auger

Equipment: CME 45

Date Completed: 8/13/2010

Logged By: R. Shiplee

Total Depth: 31.5 feet

Boring Diameter: 6" H.S.

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf) / Moisture Content (%)	LABORATORY: Liquid Limit / Plasticity Index	LABORATORY: Passing #4 Sieve (%) / Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
			13		117.4 6.5			Phi =34 deg C =100 psf		**SILTY SAND (SM) -** red brown, moist, medium dense, fine to coarse grained.
5			2							... loose.
10			72		126.1 10.5					... very dense, trace clay.
15			19							... brown, medium dense, no clay.
20			36							... dense, decreased content of fines.
25			17							... red brown, medium dense.
										SANDY LEAN CLAY (SC) - red brown, moist, firm, fine sand.
30			31							
35										**Notes:** **1.) Bottom of boring at 31.5 feet.** **2.) No free groundwater encountered.** **3.) Boring backfilled with soil cuttings 8/13/2010.**

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Date: 9/23/2010

Project No.: 112664

File Number:

LOG OF BORING B-5
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
1 of 1
A7

P-LOG_2006 BLOWS PER FOOT 112664.GPJ KA_2008_SAC.GDT 9/23/10

Surface Conditions: Flat Bare Soil

Groundwater: No free groundwater encountered.

Method:

Equipment:

Date Completed: 8/18/2010

Logged By: M.Shubert

Total Depth: 6.0 feet

Boring Diameter:

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
0													**SILTY SAND (SM) -** red brown, moist, medium dense, fine to coarse grained.
5													... trace of clay, moderate cementation.
10													**Notes:** **1.) Bottom of test pit at 6 feet.** **2.) No free groundwater encountered.** **3.) Test pit backfilled with soil cuttings 8/18/2010.**
15													
20													

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Date: 9/27/2010

Project No.: 112664

File Number:

LOG OF BORING TP-1
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
1 of 1
A-8

P-LOG_2006 BLOWS PER FOOT 112664.GPJ KA_2008_SAC.GDT 9/27/10

Surface Conditions: Flat Bare Soil

Groundwater: No free groundwater encountered.

Method:

Equipment:

Date Completed: 8/18/2010

Logged By: M.Shubert

Total Depth: 10.0 feet

Boring Diameter:

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
0													**SILTY SAND (SM)** - red brown, moist, medium dense, fine to coarse grained.
5													... trace of clay, moderate cementation.
													... weak cementation.
10													**Notes:** **1.) Bottom of test pit at 10 feet.** **2.) No free groundwater encountered.** **3.) Test pit backfilled with soil cuttings 8/18/2010.**
15													
20													

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Date: 9/27/2010

Project No.: 112664

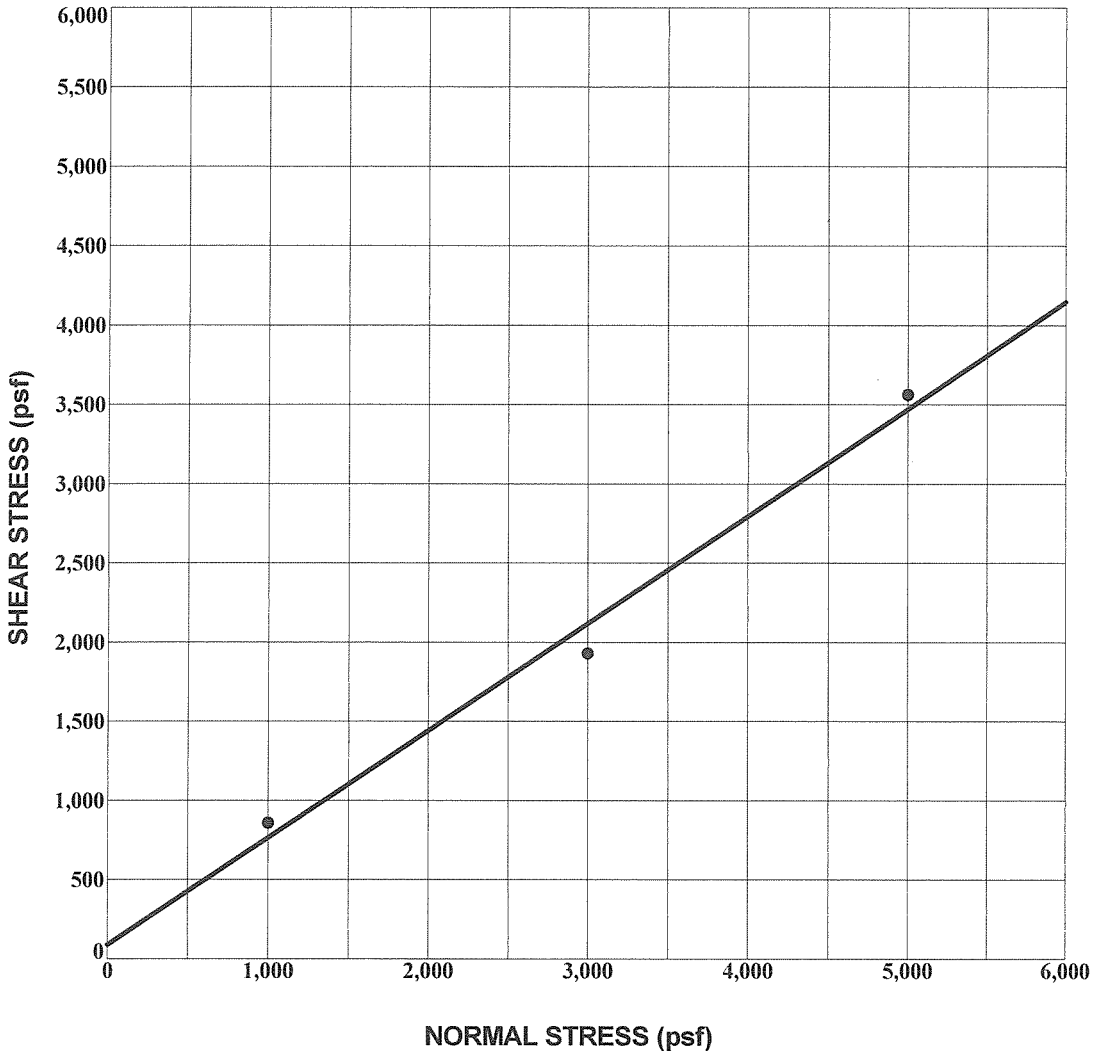
File Number:

LOG OF BORING TP-2
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
1 of 1
A-9

P-LOG_2006 BLOWS PER FOOT 112664.GPJ KA_2008_SAC.GDT 9/27/10

DIRECT SHEAR



Source:	**B-5**	**Friction Angle =**	**34 deg**
Depth:	**2.0 ft**	**Cohesion =**	**100 psf**
Test Type:	**Consolidated - Drained**		
Soil Description:	**Silty Sand (SM)**		

Dry Density (pcf)	**117.4**	**117.4**	**117.4**
Initial Water Content (%)	**6.5**	**6.5**	**6.5**
Final Water Content (%)	**15.0**	**14.0**	**13.0**
Normal Stress (psf)	**1000**	**3000**	**5000**
Shear Stress(psf)	**858**	**1929**	**3563**

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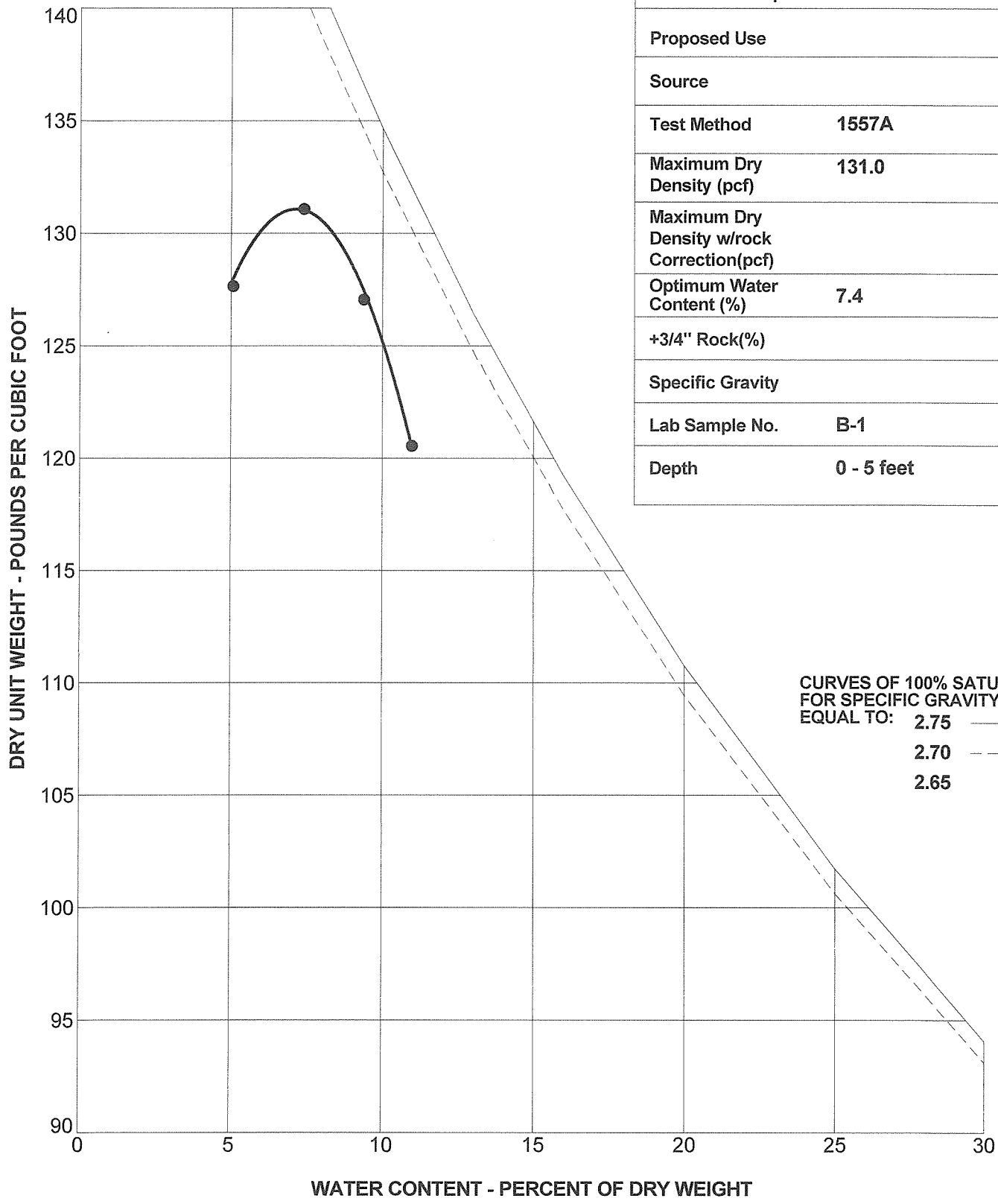
PROJECT NO. 112664

DIRECT SHEAR TEST
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
B-1

SUMMARY OF TEST RESULTS	
Material Description	Silty Sand
Proposed Use	
Source	
Test Method	1557A
Maximum Dry Density (pcf)	131.0
Maximum Dry Density w/rock Correction(pcf)	
Optimum Water Content (%)	7.4
+3/4" Rock(%)	
Specific Gravity	
Lab Sample No.	B-1
Depth	0 - 5 feet



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PROJECT NO. 112664

MOISTURE DENSITY RELATIONSHIP
PG&E SHEPHERD SUBSTATION
SHEPHERD AND SUNNYSIDE AVENUES
FRESNO COUNTY, CALIFORNIA

PLATE
B-2