





PG&E Santa Cruz 115-kV Reinforcement Project

Draft Initial Study/Mitigated Negative Declaration

October 2013

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Prepared for:
California Public Utilities Commission
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PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

Mitigated Negative Declaration

SANTA CRUZ 115-KV REINFORCEMENT PROJECT

APPLICATION NO. 12-01-012

CONTACT INFORMATION

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San Francisco, California 94102

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PROJECT INFORMATION

Project: Santa Cruz 115-kV Reinforcement Project
Santa Cruz County, California

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

DESCRIPTION OF PROJECT

Pursuant to California Public Utilities Commission (CPUC) General Order 131-D, Pacific Gas & Electric Company (PG&E) filed an application (Application No. 12-01-012) with the CPUC on January 25, 2012, for a Permit to Construct the Santa Cruz 115-kilovolt (kV) Reinforcement Project (proposed project). The application includes the Proponent's Environmental Assessment (PEA), prepared by PG&E pursuant to CPUC's Rules of Practice and Procedure Rule 2.4 (CEQA Compliance). The proposed project includes adding a 115-kV circuit between the Green Valley Substation and the Rob Roy Substation to an existing line in unincorporated Santa Cruz County, California. The proposed project includes the following primary components:

1. Rebuilding approximately 7.1 miles of the existing Green Valley-Camp Evers 115-kV Power Line (**Northern Alignment**) from a single-circuit line to a double-circuit line by replacing the existing wood power poles with tubular steel poles (TSPs) and installing new conductors.

2. Constructing an approximately 1.7-mile-long single-circuit 115-kV power line in an existing distribution right-of-way (ROW) (**Cox-Freedom Segment**) from the Northern Alignment to Rob Roy Substation.
3. Installing new components at **Rob Roy Substation** to accommodate the new 115-kV circuit and installing TSPs to accommodate the interconnection of the existing Green Valley-Rob Roy 115-kV Power Line and Rob Roy-Paul Sweet 115-kV Power Line into the modified Rob Roy Substation.

The proposed project would improve system reliability and capacity by adding another circuit between Green Valley Substation and Rob Roy Substation. Site development and preparation for all proposed project components are preliminarily scheduled to begin in July 2015, depending on CPUC approval, after which time construction of each of the components would occur concurrently. Construction would last from 15 to 18 months. Commissioning and startup of the new circuit is anticipated to occur in late 2016 or early 2017. In accordance with CPUC's General Order 131-D, approval of the project must comply with the California Environmental Quality Act (CEQA).

Pursuant to CEQA, CPUC must prepare an Initial Study (IS) for the proposed project to determine if any significant adverse effects on the environment would result from project implementation. Analysis presented in the IS is based on the significance criteria in Appendix G of the CEQA Guidelines. If the IS for the project indicates that a significant adverse impact could occur and could not be mitigated to a less-than-significant level, CPUC would be required to prepare an Environmental Impact Report.

According to Article 6 (Negative Declaration Process) and Section 15070 (Decision to Prepare a Negative Declaration or Mitigated Negative Declaration) of the CEQA Guidelines, a public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration (MND) for a project subject to CEQA when:

> (a) The [IS] . . . shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
>
> (b) The [IS] . . . identifies potentially significant effects, but:
>
> > (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed [MND] . . . and [IS] . . . are released for public review, would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
> >
> > (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

Based on the analysis in the IS, it has been determined that all project-related environmental impacts could be reduced to a less-than-significant level with the incorporation of feasible mitigation measures. Therefore, adoption of an MND will satisfy the requirements of CEQA. The mitigation measures included in this MND are designed to reduce or eliminate the

potentially significant environmental impacts described in the IS. Where a measure described in this document has been previously incorporated into the project, either as a specific project design feature or as an Applicant Proposed Measure (APM), this is noted in the discussion. Mitigation measures are structured in accordance with the criteria in Section 15370 of the CEQA Guidelines.

REQUIRED APPROVALS

PG&E would obtain permits for the project, as needed, from federal, state, and local agencies. Table MND-1 lists permits and approvals that may be required for project construction.

Table MND-1: Potential Permits and Approvals

Permit/Authorization	Agency	Requirement
Federal		
Incidental Take Permit	U.S. Fish and Wildlife Service	Required if incidental take of Santa Cruz long-toed salamander could occur
Section 404 Permit (Dredge and Fill)	U.S. Army Corps of Engineers	Required for discharge of fill material at wetland work areas
State		
Permit to Construct	CPUC	Construction of a new 115-kV circuit
Section 401 (Water Quality Certification/Waste Discharge Requirements)	Central Coast Regional Water Quality Control Board	Required for discharge of fill material at wetland work areas
National Pollutant Discharge Elimination System (NPDES) Construction General Permit	State Water Resources Control Board	Disturbance of more than 1 acre of land during construction
Local		
Encroachment Permit	Santa Cruz County	Work within County road rights-of-way and property
Building Permit	Santa Cruz County	Attachment of control enclosure to foundation at Rob Roy Substation
Grading Permit	Santa Cruz County	Grading at Rob Roy Substation
Significant Tree Removal Permit	Santa Cruz County	Removal of trees in an area considered “sensitive habitat”

ENVIRONMENTAL DETERMINATION

Based upon an IS, it is determined that the proposed project WOULD NOT HAVE a significant effect on the environment with the incorporation of the Applicant Proposed Measures (APMs) and mitigation measures. The IS is available for review at the CPUC, 505 Van Ness Avenue, San Francisco, CA 94102 and at the Aptos Branch Library, 7695 Soquel Drive, Aptos, CA 95003. The IS is also available online at:

http://www.cpuc.ca.gov/environment/info/panoramaenv/SantaCruz_115kVReinforcement/SantaCruz_115%20Reinforcement%20Project.html



Lisa Orsaba
CPUC Energy Division
Project Manager

October 17, 2013
Date

APPLICANT PROPOSED MEASURES AND MITIGATION MEASURES

Introduction

Pursuant to the Public Resources Code and the State CEQA Guidelines, the Lead Agency (CPUC) has prepared an IS for the proposed project to evaluate the proposed project's potential effects on the environment. Potential impacts associated with the proposed project's implementation have been identified in the IS.

PG&E's PEA identified APMs to address potentially significant impacts. These APMs are considered to be part of the description of the proposed project and are listed in Table 2.9-1 of the IS. Based on the IS analysis, additional mitigation measures have been identified for adoption to ensure that impacts of the proposed project would be less than significant. The additional mitigation measures supplement, or where noted, supersede (i.e., replace) the APMs. PG&E has agreed to implement all of the additional recommended mitigation measures as part of the proposed project.

A draft Mitigation Monitoring and Reporting Plan, located in Section 4 of this document, has been prepared to ensure that the APMs and mitigation measures are properly implemented. The plan describes specific actions required to implement each APM and mitigation measure, including information on timing of implementation and monitoring requirements. Following project approval, CPUC would prepare and implement a Mitigation Monitoring Compliance and Reporting Program to ensure compliance with mitigation measures approved in the Final IS/MND.

Implementation of the following mitigation measures would avoid potentially significant impacts identified in the IS or reduce them to less than significant levels.

Mitigation Measures for Biological Resources Impacts

Mitigation Measure Biology-1: Avoidance and Minimization of Impacts to Monterey Spineflower (Supersedes APM BIO-27). Before construction begins and during the appropriate phenological periods, Monterey spineflower surveys shall be conducted by a CPUC-approved, qualified botanist in areas where they were previously identified or have the potential of occurring in project work areas (as shown in Initial Study Figures 3.4-3 and 3.4-4 and/or in the project GIS database). The surveys shall be limited to the construction right-of-way and publically accessible lands where PG&E has access rights. No work shall occur within areas of Critical Habitat for Monterey Spineflower. Agricultural fields and developed areas shall not be surveyed due to the lack of suitable habitat for supporting rare plant species. The boundaries of Monterey spineflower populations near project work areas, or the limits of project work areas or access roads/routes near Monterey spineflower populations that will be avoided shall be delineated with clearly visible flagging or fencing. The populations that will be impacted shall be recorded using a submeter-accurate global positioning system ("GPS") unit, and the total acreage of temporary and permanent impacts shall be calculated.

In project work areas where Monterey spineflower is present, work shall be conducted in late summer or early fall to avoid impacting these plants before they have set seed, if feasible and only by a biologist appropriately permitted to collect seed. If this is not feasible and it is possible to collect seed prior to the start of construction, seed shall be collected from the Monterey spineflower individuals and shall be used during restoration following the completion of construction activities. If seed collection is not feasible all work areas occupied by the spineflower shall be protected by steel plates or plywood, which shall be removed as soon as construction activity in that area has been completed. Alternatively, a CPUC-approved, qualified biologist can proceed with the relocation of the spineflower to previously identified and approved locations.

To mitigate for the anticipated loss of less than 0.1 acre of occupied Monterey spineflower habitat due to project related permanent impacts (such as pole installation), PG&E shall enhance habitat at a 1:1 ratio for Monterey spineflower by removing iceplant (*Carpobrotus spp*.) and other non-native plants, including European beach grass (*Ammophila arenaria*) at locations in which Monterey spineflower are present and disturbed by project activities and if property owners authorize the enhancement efforts. These efforts shall reduce non-native species coverage by 85% and invasive species coverage by 90% and shall be maintained for up to 1 year post-construction. Site maintenance activities shall be altered or intensified when necessary to meet performance criteria. Post-construction monitoring of areas previously occupied by spineflower and impacted by construction shall be conducted by a CPUC-approved, qualified biologist to ensure that the spineflower populations have recovered, are stable, and that the sites are not occupied by invasive species. If invasive species are encroaching on the sites, they shall be removed. If spineflower populations are not recovered comparable to pre-construction levels after 1 year, remedial actions shall be taken and may include broadcasting spineflower seed collected from plants in immediately adjacent areas, if available, or obtained from appropriate seed banks, and shallow soil disturbance (*e.g.*, raking) to stimulate spineflower germination and establishment.

Alternatively, PG&E shall identify, together with USFWS, Santa Cruz County and the CPUC, appropriate suitable sites where the enhancement efforts can be executed. An appropriate site may include areas within PG&E properties close to existing populations, such as at Rob Roy Substation. After removing invasive plants, the selected restoration area shall be seeded with Monterey spineflower seed collected from impacted plants (if available) or obtained from appropriate seed banks. A monitoring and reporting program shall be developed and approved by the CPUC to ensure compliance, which shall be detailed in the Revegetation, Restoration, and Monitoring Plan. The monitoring program shall include pre- and post-treatment vegetation sample plot surveys to record the percent cover of invasive plants and Monterey spineflower prior to and after treatment. The plots shall be surveyed during the appropriate phenological period for Monterey spineflower to allow for positive identification. Non-native and invasive weed cover shall be no more than 10% in the restoration plots. Monitoring shall be conducted for a period of 2 years. If the restoration is not successful after 2 years, PG&E shall consult with USFWS, Santa Cruz County, and CPUC to define alternative measures. Reporting frequency and content shall be addressed in the Revegetation, Restoration, and Monitoring Program.

Mitigation Measure Biology-2: Site Restoration and Revegetation (Supersedes APM BIO-03). PG&E shall prepare a Revegetation, Restoration, and Monitoring Plan prior to commencement to project construction that shall be submitted to the CPUC for approval. The plan shall include the requirements for

- Impacts to Monterey spineflower identified in Mitigation Measure Biology-1
- Impacts to rare plants identified in Mitigation Measures Biology-5
- Tree removal identified in Mitigation Measure Biology-6
- Impacts to coastal scrub habitat as identified in Mitigation Measure Biology-17

The plan shall include the species or habitats that could be impacted, the replacement or restoration ratios (as appropriate), the restoration methods and techniques, and the monitoring periods and success criteria as identified in each measure.

Mitigation Measure Biology-3: Conduct Environmental Training for All Crewmembers (Supersedes APM BIO-05). An environmental training program shall be developed and presented to all crew members prior to the beginning of all construction associated with this project. The training shall describe special-status species and sensitive habitats that could occur within the project areas, protection afforded these species, and the avoidance and minimization measures required to avoid and/or minimize impacts on this project. Penalties for violations of environmental laws shall also be incorporated into the training session. Each crewmember shall be provided with an informational training handout and a decal to indicate that he/she has attended the training. The roles and responsibilities of the CPUC-approved biologists and other environmental representatives shall be identified in the Mitigation Monitoring Compliance and Reporting Program (MMCRP) and discussed during the training.

The environmental training described here shall include information about avoidance measures regarding the Santa Cruz long-toed salamander, its protected status, and the procedures to be followed in the event that the Santa Cruz long-toed salamander is observed during

construction. All new construction personnel shall receive this training before beginning work on this project.

A copy of the training and training materials shall be provided to the CPUC at least 30 days prior to the start of construction. Training logs and sign-in sheets shall be provided to CPUC on a monthly basis. As needed, infield training shall be provided to new on-site construction personnel by the environmental compliance supervisor or a qualified individual who shall be identified by the PG&E's Project Biologist, or initial training shall be recorded and replayed for new personnel.

Mitigation Measure Biology-4: Minimize Noxious Weeds. Precautions shall be taken to minimize the introduction of any invasive weeds. Construction equipment shall be clean before it arrives at work areas in the project corridor. Any landscaping involving vegetation other than trees and/or shrubs shall consist of native seed mix or other ecologically appropriate, non-invasive, plants. Only weed-free straw or mulch shall be used.

Mitigation Measure Biology-5: Avoidance and Minimization of Impacts to Special-Status Plant Populations (Supersedes APM BIO-04). If rare plants other than Monterey spineflower (which is addressed in Mitigation Measure Biology-1), but including robust spineflower, Santa Cruz tarplant, Kellog's horkelia, and Gairdners yampah, are identified within proposed work areas through surveys conducted by a CPUC-approved, qualified botanist, they shall be flagged and avoided, if feasible. If avoidance is not feasible and impacts to the individuals would occur as a result of work activities, the impacts shall be documented and addressed through the implementation of the Revegetation, Restoration, and Monitoring Plan. The plan shall require 1:1 restoration for any impacted rare plants and shall include a 2- year minimum monitoring period to ensure successful regermination of the rare plant. The plan shall also include success/performance criteria. Measureable, quantitative success/performance criteria to determine the success of mitigation for each rare plant species include: the establishment of self-sustaining populations within naturally functioning and regenerating habitat; size and density of the rare plant populations similar to the reference populations; no more than 15 percent relative cover of non-native species, and no more than 10 percent relative cover of invasive species (*e.g.*, ice plant, European beach grass, and pampas grass). If success is not reached within two years, PG&E shall consult with appropriate resource agencies (based on status and listing), Santa Cruz County, and CPUC to define alternative measures.

Mitigation Measure Biology-6: **Tree Removal and Replacement.** The Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2) shall address removal and compensatory replacement of special status tree species, including oak species and Monterey pine.

The Revegetation, Restoration, and Monitoring plan shall include the following minimum elements that address these species:

- Identification of species, size, and locations of all oak species and Monterey pine to be removed, preferably in a GIS layer
- Species, size, and locations of all replacement plantings

- Tree planting detail (provisions for adequate drainage, location, and spacing of replanted trees)
- Planting schedule
- Agreement with proper authority regarding location of replanting (*e.g.*, written permission from jurisdiction to replant on that jurisdiction's land, or landowner)
- Monitoring requirements to ensure success of the trees and contingency measures if trees are not successful. Both tree species should be monitored for at least three years

Oaks and Monterey pine shall be replaced as described in the following table.

If tree replacement on-site is not possible due to constraints such as lack of property owner consent, incompatibility with regulatory clearance requirements, or some other similar constraint, PG&E shall consult with Santa Cruz County to fund appropriate organizations for offsite tree replacement.

Mitigation for removal of oak trees of any size	
Oak	Replacement ranges from 1:1 for saplings to 10:1 for large oaks; replacement should be of the same species of oak as removed. Replacement ratios shall be determined by the CPUC-approved, qualified biologist (or arborist), depending on the size and health of each tree removed.
Mitigation for removal of Monterey pine	
Monterey Pine	Individual specimens of Monterey pine less than 6 inches shall be relocated; specimens over 6 inches and under 24 inches diameter that are proposed for removal shall either be relocated or replanted at a 5:1 ratio Individual trees greater than 24 inches diameter shall be replaced at 10:1.

Mitigation Measure Biology-7: Seasonal Ground Disturbance Windows (Supersedes APM BIO-25). Project related ground disturbance activities shall not take place in Santa Cruz long-toed salamander upland habitat or dispersal habitat within 1 mile of a known or potential breeding pond during the local rainy season (typically between October 15 and April 15 or as outlined by the local precipitation data available at NOAA National Weather Service's website http://www.weather.gov/) to avoid affecting Santa Cruz long-toed salamander during their breeding migration or during outward-bound dispersal of post-metamorphic juveniles. The seasonal restriction does not apply to locations that are within 1 mile of a known or potential breeding pond but do not support upland habitat or dispersal habitat for the salamander such as paved areas and agricultural fields. The locations for which the seasonal restriction does not apply shall be identified with supporting documentation submitted to the CPUC for approval.

Fencing. If construction is anticipated to extend past the beginning of the local rainy season, non-ground disturbing work within the work areas supporting dispersal and upland habitat for the salamander shall only be allowed if an exclusion fence is in place prior to the first significant rainfall (0.25 inches or greater) and no later than October 15th. Fencing shall remain in place until activities at a particular site are completed. During construction, the CPUC-approved,

qualified biologist shall check the fence at each location on at least a weekly basis for presence of wildlife and for integrity of the fence.

If a salamander is observed in project work areas, crews shall stop work within the specific work area as quickly as is safe to do so and shall immediately contact the Environmental Compliance Manager and the PG&E Project Biologist. Work shall not commence within the specific location of the siting until the completion of consultation with USFWS and CDFW and all impacts to Santa Cruz long-toed salamander can be avoided.

Mitigation Measure Biology-8: Limiting Vegetation and Tree Removal (Supersedes APM BIO-26). For all sites west of Corralitos Creek, including those within 1 mile of a known or potential Santa Cruz long-toed salamander breeding ponds, all clearing of vegetation shall occur under the supervision of the CPUC-approved, qualified biologist to ensure that adjacent habitat is not unnecessarily removed and no impacts occur to Santa Cruz long-toed salamander. The CPUC-approved biologist shall conduct a pre-activity survey for special status species, ensure that the access routes are surveyed to avoid crushing wildlife, and limit the vegetation removal to the minimum amount necessary to complete the work. Clearing of vegetation west of Corralitos Creek shall be performed by hand (chain-saws and similar hand equipment are acceptable) without the use of heavy equipment. In addition, clearing of vegetation (including tree removal) in these areas west of Corralitos Creek shall not occur during the rainy season (typically between October 15 and April 15 or as outlined by the local precipitation data available at NOAA National Weather Service's website http://www.weather.gov/), when Santa Cruz long-toed salamander are more likely to be at or near the surface.

The trees removed (number of trees, diameter at breast height, species, and location) shall be documented and addressed in the Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2).

Mitigation Measure Biology-9: Working in Santa Cruz Long-toed Salamander Habitat. Construction that could harm Santa Cruz long-toed salamander (*e.g.*, staging of heavy equipment and materials, grading, excavation) within work areas where suitable upland habitat occurs (or any additional suitable upland habitat areas identified prior to construction) as defined in Mitigation Measure Biology-7, shall only be allowed if Santa Cruz long-toed salamanders have been excluded from the area during the rainy/dispersal season prior to construction. If work areas need to be expanded in suitable upland habitat areas where salamander has not been previously excluded, only non-ground disturbing activities (i.e., no excavation) shall be allowed in these areas. The CPUC-approved, qualified biologist shall survey the expansion areas and flag all burrows and/or other potential refugia for avoidance. If burrows are unavoidable (*e.g.*, no other space that can support vehicles or equipment is available due to space or topography constraints), a temporary surface barrier (*e.g.*, plywood, steel plate, or fiberglass matting) shall be placed over burrows immediately prior to using the expanded work area, where practicable (based on topography, soil type, safety, etc.). The temporary surface barrier shall be immediately removed at the end of each day (or sooner). If it is not practicable to place a temporary surface barrier or avoid the burrow within the expanded work area, no work that could harm Santa Cruz long-toed salamander (*e.g.*, staging of heavy

equipment and materials, grading, excavation) shall be allowed in these areas until the PG&E Project Biologist contacts USFWS, CDFW, and the CPUC for additional instructions and measures to be implemented that ensure no impacts to Santa Cruz long-toed salamanders. Under no circumstances shall the salamanders be handled. Vegetation and tree removal in Santa Cruz long-toed salamander habitat is addressed in Mitigation Measure Biology-8.

Mitigation Measure Biology-10: Habitat Restoration of Disturbed Work Areas in Santa Cruz Long-toed Salamander Habitat (Supersedes APM BIO-28). Habitat restoration of disturbed work areas within suitable upland habitat or dispersal habitat for the Santa Cruz long-toed salamander shall be required. Habitat restoration shall include, but not be limited to, reseeding and restoring construction areas to pre-construction conditions with native species. Areas shall be monitored for one year to ensure that invasive species do not overtake native species growth. If invasive species are found, they shall be removed. Woody debris, leaf litter, and other natural materials used as refugia for migrating salamanders shall be restored or replaced after construction is complete in areas where it was cleared prior to construction. The debris should be stockpiled during clearing for later use. Habitat restoration efforts shall be identified in the Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2).

Mitigation Measure Biology-11: Nesting Birds (Supersedes APM BIO-12). This measure applies to all work areas in which construction related activities are to be conducted during the nesting bird season (generally between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions).

Tree removal activities should be conducted outside of the nesting bird season. If trees are to be removed during the nesting season, the trees and surrounding area shall be surveyed following the provisions listed below.

Survey Requirements. If work is scheduled to occur during the avian nesting season, nesting bird surveys shall be conducted according to the following provisions:

- Surveys shall occur within 7 days prior to the start of ground-disturbing construction or vegetation trimming or removal activities. If there is no work in an area for 7 days, it shall be considered a new work area if construction or vegetation trimming or removal begins again.
- Surveys shall be conducted with sufficient survey duration and intensity of efforts necessary for the identification of active nests (including nests of protected species) within trees identified for removal and/or pruning , and within a 500 foot buffer; surveys for tree pruning or removal work are to be completed within 48 hours of work beginning
- Surveys shall be conducted during locally appropriate dates for nesting seasons; note that generally the season is between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions
- The surveys shall be conducted by a CPUC approved, qualified biologist;
- Provisions for addressing nesting bald eagles, including a 0.5-mile survey area to be implemented within areas with suitable habitat for nesting bald eagles
- Survey results shall be made available to the CPUC

- Work areas within which significant noise is not generated, such as work performed manually, by hand or on foot and/or that would not cause significant disturbances to nesting birds (*e.g.*, operating switches, driving on access roads, normally occurring activities at substations, staging and laydown areas) do not need to be surveyed prior to use. None of these activities shall result in physical contact with a nest.

Avoid impacts on nesting birds. During the nesting season (generally between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions) trees with raptor nests that fall within a 500 feet buffer from a work location, shall be evaluated by a CPUC-approved, qualified biologist to determine, whether the raptor nest is "active". No trees with active raptor nests shall be removed during nesting season.

No additional measures shall be implemented if active nests are more than the following distances from the nearest work areas: a) 500 feet for raptors, or (b) 250 feet for passerine birds in rural areas (c) 50 feet for common (non-special status) passerine birds in residential, commercial, and industrial areas. Buffers shall not apply to construction-related traffic using existing roads where the use of such roads is not limited to project-specific use (i.e., county roads, highways, farm or other private roads).

As appropriate, exclusion techniques may be used for any construction equipment that is left unattended for more than 24 hours to reduce the possibility of birds nesting in the construction equipment. An example of an exclusion technique is covering equipment with tarps.

Buffer reduction. The specified buffer sizes for birds may be reduced on a case-by-case basis if, based on compelling biological or ecological reasoning (*e.g.*, the biology of the bird species, concealment of the nest site by topography, land use type, vegetation, and level of project activity, level of pre-existing disturbance on site), it is determined by a CPUC-approved, qualified biologist that implementation of a specified smaller buffer distance will still avoid project-related "take" (as defined by Fish and Game Code Section 86). Requests to reduce standard buffers must be submitted to the CPUC's independent biologist(s) for review. Requests to reduce buffers must include: species, location, pre-existing conditions present on-site, description of the work to be conducted within the reduced buffer, size and expected duration of proposed buffer reduction, reason for the buffer reduction, the name and contact information of the CPUC approved, qualified biologist(s) who request the buffer reduction and shall conduct subsequent monitoring, and the proposed frequency and methods of monitoring necessary for the nest given the type of bird and surrounding conditions. The CPUC's independent biologist shall respond to PG&E's request for a buffer reduction (and buffer reduction terms) within one business day; if a response is not received, PG&E can proceed with the buffer reduction, until the CPUC's independent biologist can review and approve the buffer reduction request.

Non-special status species found building nests within the work areas after specific project activities begin, may be tolerant of that specific project activity; however, the CPUC approved, qualified biologist shall implement an appropriate buffer or other appropriate measures to protect the nest, after taking into consideration the position of the nest, the bird species nesting

on site, the type of work to be conducted and duration of the construction disturbance. In these cases, the proposed buffer or other measures must be approved by the CPUC's independent biologist through the buffer reduction process outlined in this measure, if buffers are less than those specified in this measure. These nests shall be monitored on a daily basis and only during construction activities (no monitoring required over weekends or periods when no work is conducted) by a CPUC-approved, qualified biologist until the CPUC-approved, qualified biologist has determined that the young have fledged, or construction ends within the work area (whichever occurs first). If the CPUC-approved, qualified biologist determines that the nesting bird(s) are not tolerant of project activity, the buffer outlined above in this measure shall be implemented.

If nesting birds show signs of intolerance to construction activities within a reduced buffer zone, the CPUC-approved, qualified biologist shall reinstate the recommended buffers. The recommended buffers may only be reduced again following the same process, as identified above, and after the CPUC-approved, qualified biologist has determined that the nesting birds are no longer exhibiting signs of intolerance to construction activities.

Monitoring and reporting. All nests with a reduced buffer shall be monitored on a daily basis during construction activities by a CPUC-approved, qualified biologist until the CPUC approved, qualified biologist has determined that the young have fledged, or construction ends within the reduced buffer/work area (whichever occurs first).

Nest locations and exclusion buffers shall be mapped (using GIS) for all nests identified. This information shall be maintained in a database and shall be provided to the CPUC. A monthly written report shall be submitted to the CPUC for construction within a reduced buffer and shall include the following: information included in buffer reduction requests, work conducted within the work site, duration of work activities and related buffer reduction, information on nest success (eggs, young and adults). No avian reporting shall be required for construction occurring outside of the nesting season and if construction activities do not occur within a reduced buffer during any calendar month. A final report shall be submitted to the CPUC at the end of each nesting season summarizing all avian related monitoring results and outcomes for the duration of project construction. Nests located in areas of existing human presence and disturbance, such as in yards of private residences, or within commercial and or industrial properties are likely acclimated to disturbance and do not need to be monitored, as determined by the CPUC approved, qualified biologist and approved by the CPUC's independent biologist.

Mitigation Measure Biology-12: Nesting Bald and Golden Eagles (Supersedes APMs BIO-12 and 12A). Construction activities are anticipated to occur during the nesting season for bald and golden eagles (eagles) (generally from January 15 through August 31). A CPUC approved, qualified biologist shall conduct nesting bird preconstruction surveys, as defined in Mitigation Measure Biology-12, for all construction activities that shall occur during the nesting season and within 0.5 mile of known eagle nest locations. Surveys shall be conducted for a distance of 0.5 mile from all project work areas (including staging areas, pull sites, and areas were access road improvements and/or ground disturbance is required). The frequency of the surveys and monitoring shall follow USFWS and CDFW recommendations and protocols (*e.g.*, USFWS

Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations [Pagel et al. 2010] and CDFW Bald Eagle breeding and nesting survey instructions) and shall take into consideration landscape characteristics, nest location and visibility, and status of the nest. Helicopters may be used to conduct aerial surveys to document nests up to 0.5 mile from project work areas; otherwise, surveys can be conducted from observation points within construction right-of-ways and publicly accessible lands where PG&E has access rights. Where physical access to an area is unavailable, alternate, appropriate survey techniques should be used to compensate for limited physical access. Helicopter surveys, if needed, shall be appropriately scheduled to occur during different phases of the eagle nesting season and follow-up terrestrial surveys shall be conducted of nests observed by aerial survey, if needed, where accessible and in accordance with the instructions provided by USFWS/CDFW published guidance documents and instructions. Subsequent follow up surveys shall be conducted (if needed) to check on the status of each nest.

If no active eagle nests are detected, no additional measures are required.

If active bald or golden eagle nests are detected in areas exposed to urban-related disturbances (*e.g.*, air, vehicle, and pedestrian traffic, loud community events, parks, agricultural or farm lands in which farm equipment is generally operated, industrial settings), a 0.25 mile buffer shall be established around the nest. At the discretion of the CPUC-approved qualified biologist, the buffer area may be increased around active eagle nests detected in more rural or undisturbed environments.

Buffer reductions for work within 0.25 miles of a bald or golden eagle nest shall follow the requirements identified in Mitigation Measure Biology-12; however, buffer reductions for bald and golden eagles must also be approved by CDFW and/or USFWS. If construction activities are approved by CPUC, CDFW and USFWS to be conducted within a reduced buffer, monitoring of active eagle nests shall take into considerations aspects such as landscape characteristics, nest location, and visibility of the nest and shall follow guidance and instructions provided by USFWS/CDFW published guidance documents and instructions. Per Mitigation Measure Biology-12, monitoring requirements shall be submitted with the buffer reduction request.

Use of helicopters shall be limited, to the extent practicable, to trips necessary to deliver, install and/or remove towers, poles, conductor, and tower/pole related equipment. Helicopter flight paths shall be developed to minimize and avoid impacts to eagle nests identified during project preconstruction surveys and shall not occur within 0.5 miles of an active eagle nests unless the nest occurs within less than 0.5 miles from planned and regularly occurring helicopter flight paths from the existing airport. If the active nest occurs within 0.5 miles of a planned and regularly used flight path from the existing airport, PG&E shall coordinate with local air traffic controllers to either use existing flight paths and/or adjust flight paths to a route that is consistent with all project requirements and avoids impacts to the nesting bald eagles; the CPUC shall be notified when this occurs.

Mitigation Measure Biology-13: White Tailed Kite. A qualified biologist shall conduct pre-construction surveys for white tailed kite within ¼ mile of project construction activities, within 7 days of the start of construction. Surveys can be conducted from observation points within

construction right-of-ways and publically accessible lands where PG&E has access rights. Where physical access to the entire survey area is unavailable, alternate, appropriate survey techniques shall be used to compensate for limited physical access. If any construction activities are planned during the nesting season (for this species approximately February 1 through August 31), avoidance measures shall include a no-construction buffer zone of a minimum distance of ¼ mile. If occupied nests are closer than this distance to the nearest work site, consultation with CPUC and CDFW shall be required to discuss how to implement the project and species avoidance measures to avoid "take."

Mitigation Measure Biology-14: Avoidance of Roosting Bats (Supersedes APM BIO-15). ***Work Areas.*** Suitable bat habitat shall be assessed by a CPUC-approved, qualified biologist, in trees within a 50-foot buffer of active work areas, and in structures with suitable bat habitat within a 100-foot buffer of active work areas. If roosting habitat is found in a tree or structure, the CPUC-approved, qualified biologist shall define an appropriate limited or no work exclusion area surrounding the roosting habitat based on the bat species, numbers, and roost type (i.e., individuals, small group, potential maternal colony) as well as in consideration of the habitat quality and duration of work related disturbance. The limited work or exclusion areas shall be approved by the CPUC's independent biologist who shall respond to PG&E's request for approval within one business day; if a response is not received, PG&E can proceed with the implementation of the proposed limited work or exclusion area, until the CPUC's independent biologist can review and approve the buffer reduction request.

The limited work or exclusion area shall not apply to construction-related traffic using existing roads where the use of such roads is not limited to project-specific use (i.e., county roads, highways, farm or other private roads, etc.) and does not apply if the roost(s) is/are located in a residential, commercial or industrial area

The boundaries of the limited or no work area shall be clearly marked by the CPUC approved, qualified biologist to ensure that no vehicles or equipment physically disturb the roost. The CPUC approved, qualified biologist shall inspect roost sites when construction is occurring at the specific work site, to ensure integrity of the limited or no work area, and ensure that the size of the area is adequate based on site conditions and construction generated noise.

Tree Pruning and Removal. Pre-construction habitat assessments shall be conducted by a CPUC-approved, qualified biologist on all trees to be removed that are 10 inches or above in diameter at breast height (dbh) to identify suitable roosting habitat, within seven (7) days of the tree removal date.

For trees to be removed that provide suitable roosting habitat features, follow-up emergence surveys and acoustic monitoring shall be conducted for one half hour prior to sunset and one hour after sunset. If bats are not detected emerging from trees and acoustic activity indicates that no roosting bats are present, no additional measures are required.

If bats are detected emerging from trees or acoustic activity indicates that roosting bats are present, the potential presence of a maternal colony shall be assessed. If a maternal colony is found in a tree, no work shall occur within 50 feet of the tree.

Suitable roost trees shall be removed, to the extent practicable, outside of April to September to avoid impacts to reproductive bats. If vegetation-removal activities shall be conducted during the bat reproductive season the following techniques shall be implemented to passively vacate bats from roosts:

- Trim off all limbs without roost features to alter the air flow and temperature around the roost feature thus encouraging bats to vacate roost features on their own. The tree shall then be left for about 24 hours to allow for the bats to move to another roost site.
- Create noise and vibration disturbance on the tree (*e.g.*, concussive hitting with equipment and/or chainsaw cutting) for at least 15 minutes before carefully opening up potential crevices and cavities for inspection and clearance.
- If bats may be in a tree bole or heavy branch cavity, attempt to expose them and allow escape. For example, if the cavity cannot be investigated by the CPUC approved, qualified biologist, then carefully cut successive sections above the cavity to open it, waiting up to 10 minutes in between each cut, and determine if it is empty or allow any bats inside to crawl or fly out.

Reporting. All bat roosts in trees shall be documented and reported through the mitigation monitoring compliance and reporting program (MMCRP).

Mitigation Measure Biology-15: Avoidance and Minimization of Impacts to San Francisco Dusky-footed Woodrat (Supersedes APM BIO-16). A CPUC approved, qualified biologist shall conduct a pre-construction survey to identify potential San Francisco dusky-footed woodrat houses within the proposed project work areas and within 5 feet of the edge of the work areas in order to avoid direct take of woodrats. Woodrat houses found within the work site or within 5 feet from a work site shall be flagged or fenced for avoidance. If impacts to a woodrat house located within a work site are unavoidable, a CPUC-approved, qualified biologist, prior to construction and outside of breeding season (April through June), shall dismantle the house by hand, removing the materials layer by layer to allow for adult woodrats to escape. If young are present and found during the disassembling process, a CPUC-approved, qualified biologist shall leave the site for at least 24 hours to allow for the rats to relocate their young on their own. This step shall be repeated as needed until the young have been relocated by the parent woodrats. Once the nest is vacant, the disassembly process shall be completed and the nest sticks shall be collected and moved to another suitable close-by location to allow for nest reconstruction. Piles of cut vegetation/slash shall be retained near the work site prior to nest dismantling, to provide refuge for woodrats that may become displaced (Lee and Tietje 2005).

Mitigation Measure Biology-16: Avoidance and Minimization of Impacts to Coastal Scrub (Supersedes APM BIO-22). Before construction begins, the boundaries of coastal scrub located within work areas shall be delineated with clearly visible flagging or fencing, or otherwise marked for avoidance. The flagging, fencing, and/or other marking shall be maintained in place for the duration of construction at each location until work is completed at that site, and these areas shall be avoided. If any coastal scrub habitat cannot be avoided, the CPUC-approved, qualified biologist shall conduct a pre-activity survey to ensure no listed or protected species

are present and shall then provide guidance to the crew concerning additional measures that may be required to conduct the work. Impacts and disturbance to coastal scrub occurring as a result of work activities shall be documented and addressed through the implementation of the Revegetation, Restoration, and Monitoring Plan.

Coastal scrub habitat areas that are permanently disturbed by the project shall be replaced off-site with new habitat at a 2:1 ratio by funding one or more recognized and County approved re-vegetation/restoration organizations. Alternatively, the losses of Coastal scrub shall be compensated for by enhancement of existing habitat (*e.g.*, through removal of non-native species from existing coastal scrub habitat) at a 3:1 ratio within suitable habitat on properties for which PG&E can obtain property owner consent and within suitable habitat on PG&E's properties in the area(*e.g.*, Rob Roy Substation). PG&E shall begin the removal of non-native and invasive species from PG&E suitable habitat in the 1 or 2 years prior to construction commencement to initiate the enhancement efforts. These efforts shall then continue together with regular monitoring until non-native and invasive species have been reduced by 70% from initial conditions, up to a maximum period of 2 years following the end of construction activities. If non-native and invasive species removal efforts have not met the success criteria of 70% reduction by the end of the two year monitoring period, PG&E shall coordinate with CPUC and the County to determine alternative measures (*e.g.*, development of educational materials/programs, signage, etc.). Coastal scrub areas within suitable upland habitat for the Santa Cruz long-toed salamander that support burrows and are located outside of a previously identified and fenced work area shall not be disturbed during construction activities.

Mitigation Measure Biology-17: Protection and Inspection of Open Excavations for Entrapped Wildlife (Supersedes APM BIO-17). Excavations that may act as pitfall traps (i.e., those exceeding 6 inches in depth) shall be secured in one of the following ways to ensure that animals do not become entrapped:

- Covers may be used to completely cover exposed holes; Covers shall be strong enough to prevent wildlife from falling into the excavations and shall be secured to prevent burrowing underneath the covers.
- Fencing may be used; in biologically sensitive areas, the fences around excavations shall provide one way passage for small animals to exit the immediate work area
- Escape ramps may be used for excavations greater than 6 inches in depth

Existing pole excavations shall be inspected before they are filled to ensure the absence of wildlife.

If a special-status species is located in the excavation and cannot escape, the CPUC approved, qualified biologist shall safely stop all construction activities in the immediate work area. The PG&E Project Biologist shall contact CDFW and/or USFWS (as appropriate, depending on the species' listing status) and PG&E shall comply with the recommendations provided by the resource agencies. If guidance from the resource agency cannot be obtained immediately, the CPUC approved, qualified biologist shall ensure that the species does not suffer any distress by implementing measures such as:

- Provide appropriate shade coverage

- Protect from/avoid sun and heat exposure
- Avoid the generation of human related disturbance within proximity to the species location
- Protect from possible predation
- For amphibians - provide a moist environment through the use of wet sponges or locally found wet moss

Mitigation Measures for Cultural Resources Impacts

Mitigation Measure Cultural Resources-1: Prior to commencement of construction, the limits of the project work areas within 165 feet (50 meters) of any known potentially eligible resources (sites HR-3 [Kliewer barns], HR-5 [1909 single-family home], HR-12 [Corralitos Road Italianate home], HR-14 [Apple barn], and HR-15 [Day Valley Cemetery]) shall be marked with visible flagging tape or equivalent. The construction crews shall be instructed that no vehicle access, travel, equipment staging, storage, or other construction-related work shall occur outside the flagged areas to ensure that known historic resources are not inadvertently damaged during implementation of the project.

Mitigation Measure Cultural Resources-2: Prior to commencement of construction within any project area, the appropriate PG&E personnel shall compare areas of proposed ground disturbance with the project GIS layers that show cultural resource survey areas. PG&E shall verify that proposed ground disturbance areas have been surveyed for cultural resources. If the areas of proposed ground disturbance have been surveyed (and no known resources are located in the area), then no additional measures are required and the work may commence.

If the areas have not been surveyed, no ground disturbance shall be permitted prior to completion of surveys by a CPUC-approved, qualified cultural resource specialist/archaeologist or historian. If a resource is found, it shall be evaluated by the qualified cultural resource specialist/archaeologist or historian to determine whether it is (1) eligible for the CRHR (and thus an historical resource for purposes of CEQA); or (2) a unique archaeological resource as defined by CEQA. If the resource is determined to be neither a unique archaeological nor an historical resource, work may commence in the area. If the resource meets the criteria for either an historical or unique archaeological resource, or both, work shall remain halted, and the cultural resource specialist/archaeologist or historian shall consult with CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). Preservation in place, i.e. avoidance, is the preferred method of mitigation for impacts to cultural resources and shall be required unless there are other equally effective methods. If any found resources can be completely avoided, then evaluation of the resource is not required, subject to approval by CPUC. Other methods to be considered shall include evaluation, collection, recordation, and analysis of any significant cultural materials in accordance with a Cultural Resources Management Plan prepared by the CPUC-approved, qualified cultural resource specialist/archaeologist or historian. The methods and results of evaluation or data recovery work at an archaeological or historic find shall be documented in a professional level technical report to be filed with CHRIS. Work may commence upon completion of treatment, as approved by the CPUC.

Mitigation Measure Cultural Resources-3: In the unlikely event that a previously unidentified buried archaeological resource is uncovered during implementation of the project, all work within 165 feet (50 meters) of the discovery shall be halted. A CPUC-approved, qualified cultural resource specialist/archaeologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts shall occur, the resource shall be documented on California State Department of Parks and Recreation cultural resource record forms and no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, the CPUC-approved cultural resource specialist/archaeologist shall evaluate the resource and determine whether it is (1) eligible for the CRHR (and thus a historical resource for purposes of CEQA); or (2) a unique archaeological resource as defined by CEQA. If the resource is determined to be neither a unique archaeological nor an historical resource, work may commence in the area. If the resource is meets the criteria for either an historical or unique archaeological resource, or both, work shall remain halted, and the cultural resources specialist/archaeologist shall consult with CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). Preservation in place, *i.e.* avoidance, is the preferred method of mitigation for impacts to cultural resources and shall be required unless there are other equally effective methods. Other methods to be considered shall include evaluation, collection, recordation, and analysis of any significant cultural materials in accordance with a Cultural Resources Work Plan prepared by a CPUC approved qualified cultural resource specialist/archaeologist. The methods and results of evaluation or data recovery work at an archaeological find shall be documented in a professional level technical report to be filed with CHRIS. Work may commence upon completion of treatment, as approved by the CPUC.

Mitigation Measure Paleontology-1: In the unlikely event that a previously unidentified paleontological resource is uncovered during implementation of the project, all ground disturbing work within 165 feet (50 meters) of the discovery shall be halted. A CPUC-approved, qualified paleontologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified, CPUC-approved paleontologist shall evaluate the resource and determine whether it is "unique" under CEQA, Appendix G, part V. If the resource is determined to not be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the paleontologist shall consult with the property owner and CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA. Preservation in place, *i.e.*, avoidance, is the preferred method of mitigation for impacts to paleontological resources and shall be required unless there are other equally effective methods. Other methods, with the permission of the property owner, include ensuring that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of a qualified paleontologist. All recovered fossils shall be curated at an accredited and permanent scientific institution according to Society of Vertebrate Paleontology standard

guidelines (SVP [1991, 1995, 2005]) standards; typically the Natural History Museum of Los Angeles County and UC Berkeley accept paleontological collections at no cost to the donor. Work may commence upon completion of treatment, as approved by the CPUC.

Mitigation Measures for Geology and Soils Impacts

Mitigation Measure Geology-1: PG&E shall have a professional geotechnical engineer conduct a geotechnical investigation in areas that are suspected to have unstable soils or landslide susceptibility, be underlain by a fault, or that could be subject to strong ground shaking and ground failure. PG&E shall implement the recommendations and findings in the geotechnical report in the project's final design to minimize the effects of expansive soils, differential settling, fault rupture, strong ground shaking, ground failure, and loose and unstable soils.

Where slope failure could occur, design features, such as engineered subgrades and reinforced foundations, over-excavating soft or loose soils and replacing them with engineered backfill materials, increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction, treating soft or loose soils in place with binding or cementing agents, and avoiding areas of unstable soils shall be incorporated into the project's design. PG&E shall comply with all applicable codes and seismic standards.

Mitigation Measure Geology-2: During pole installation activities on hilly terrain, construction slopes and existing natural slopes impacted by construction operations shall be evaluated for stability. In developing grading plans and construction procedures for re-establishing and widening access roads and replacing power poles, slope stability shall be analyzed. Construction slopes and grading plans shall be designed to limit the potential for slope instability and erosion during construction. Construction activities likely to result in slope instability shall be suspended, as necessary, during and immediately following periods of heavy precipitation when unstable slopes are more susceptible to failure unless adequate best management practices can be implemented, as detailed in the SWPPP.

Mitigation Measures for Hazards and Hazardous Materials Impacts

Mitigation Measure Hazards-1: An Environmental Training and Monitoring Program (ETMP) shall be established to communicate to all field personnel any environmental concerns and appropriate work practices, including spill prevention and response measures and Best Management Practices (BMP). The training program shall emphasize site-specific physical conditions to improve hazard prevention (*e.g.*, identification of flow paths to nearest water bodies) and shall include a review of all site-specific plans.

A PG&E-designated representative shall be identified 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 and to provide the necessary information for emergency response. A copy of the ETMP shall be submitted to the California Public Utilities Commission (CPUC) at least 30 days prior to construction. Training attendance sheet(s) shall be submitted to the CPUC on a monthly basis.

Mitigation Measure Hazards-2: PG&E shall prepare and incorporate methods and techniques to minimize the exposure of the public to potentially hazardous materials during all phases of project construction through operation into a Hazardous Substance Control and Emergency Response Plan (HSCERP) as part of the project-specific SWPPP and submit the SWPPP to CPUC for recordkeeping at least 30 days prior to project construction. The HSCERP measures shall require implementation of appropriate control methods and approved containment and spill control practices for construction and on-site material storage. All hazardous materials and hazardous wastes shall be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. With the exception of wood poles, the plan shall specify that all hazardous materials shall be collected in project-specific containers and transported to a PG&E service center designated as a PG&E consolidation site. Wood poles shall be transported off site once removed from the ground and temporarily stored in project-specific containers at a PG&E facility. As containers are filled, poles shall be transported to an appropriate licensed Class I landfill or the composite-lined portion of a solid waste landfill. The HSCERP measures shall also include, but not be limited to, the following:

- Proper disposal of potentially contaminated soils
- Vehicles and equipment parking near sensitive resource areas during construction
- Emergency response and reporting procedures to address hazardous material releases

The measures shall specify that emergency spill supplies and equipment shall be available to respond in a timely manner if an incident should occur. Response materials such as oil-absorbent material, tarps, and storage drums shall be used as needed to contain and control any minor releases.

Mitigation Measure Hazards-3: PG&E shall provide a Health and Safety Plan (HSP) to ensure that potential safety hazards are minimized. The HSP shall include elements that establish worker training and emergency response procedures relevant to project activities. The plan shall be submitted to CPUC at least 30 days prior to construction for CPUC recordkeeping.

Mitigation Measures for Noise Impacts

Mitigation Measure Noise-1: When construction activities are located within 50 feet of residences, a temporary noise barrier shall be placed between the residences and any noise-generating equipment that cannot move under its own power while in use. The barrier shall be installed within 3 feet of the noise source and shall be approximately 3 feet taller than the piece(s) of equipment. The distance between the barrier and the equipment may be adjusted to ensure safe equipment operation. The type of barrier used shall depend on the noise source, but should be installed without cracks or gaps in the face or large or continuous gaps at the base and have a minimum surface weight of 1.0 lb. per sq. ft. The barriers may be constructed using one or more of the following:

- Stacked hay bales
- Standing 0.75-inch-thick plywood or other solid sheet materials with equivalent surface mass.

Noise-attenuating construction blanket type barrier materials secured to a cyclone fence or hung off of guy wires or other frame. Barriers shall be removed at the end of noise-generating activities at each location.

Mitigation Measures for Recreation Impacts

Mitigation Measure Recreation-1: PG&E shall coordinate with Santa Cruz County Parks Department staff at least 4 weeks in advance of construction within Pinto Lake County Park to ensure no pre-scheduled special events shall be interrupted by construction activities.

Mitigation Measures for Transportation and Traffic Impacts

Mitigation Measure Traffic-1: PG&E shall develop a project-specific Transportation Management Plan (TMP) to be implemented during construction, which shall be submitted to the CPUC for review at least 30 days prior to construction. The TMP shall conform to the California Joint Utility Traffic Control Committee's *Work Area Protection and Traffic Control Manual*. The TMP shall include the following:

- Standard safety practices, including installation of appropriate barriers between work zones and transportation facilities, placement of appropriate signage, and use of traffic control devices.
- Flaggers and/or signage shall be used to guide vehicles through or around construction zones using proper construction techniques.
- Provision that all equipment and materials shall be stored in designated work areas in a manner that minimizes traffic obstructions and maximizes sign visibility.
- Acceptable vehicle speeds on project roadways. Vehicle speeds shall be limited to safe levels as appropriate for all roads, including access roads and overland routes without posted speed limits.
- Routing of trucks to avoid minor roads, where possible, to reduce congestion and potential asphalt damage, including:
  - Cox Road
  - Dalton Lane
  - McDonald Road
- No closure of Airport Boulevard and Freedom Boulevard during peak traffic hours.

Mitigation Measures for Cumulative Impacts

Mitigation Measure Cumulative-1: PG&E shall not conduct construction activities when other projects are being constructed nearby such that noise impacts at sensitive receptors in the area exceed an 8-hour L_{eq} of 80 dBA.

Mitigation Measure Cumulative-2: PG&E shall not obtain water from the City of Santa Cruz during a Water Shortage Alert, Water Shortage Warning, Water Storage Emergency, Severe Water Shortage Emergency, or Critical Water Shortage Emergency (Stages 1, 2, 3, 4, and 5, respectively), as defined in the City of Santa Cruz Water Shortage Contingency Plan (March 2009).

FINDINGS

The IS was prepared to identify the potential effects on the environment from construction and operation of the Santa Cruz 115-kV Reinforcement Project and to evaluate the significance of these effects. Based on the IS and the Findings listed below, CPUC has determined that the proposed project would not have a significant effect on the environment.

- With the implementation of APMs and above 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 effects 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 are insignificant with implementation of the above mitigation measures
- Based on the IS, there is no evidence that implementing the proposed project would have any adverse impacts on people.



October 17, 2013

Lisa Orsaba
CPUC Energy Division
Project Manager

Date

LIST OF ACRONYMS AND ABBREVIATIONS

AAC	all-aluminum conductor
AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
ADT	average daily traffic
ALSFPD	Aptos-La Selva Fire Protection District
ALUP	Airport Land Use Plan
amsl	above mean sea level
APLIC	Avian Power Line Interaction Committee
A-P Act	Alquist-Priolo Earthquake Fault Zoning Act
APM	Applicant Proposed Measure
AQMP	Air Quality Management Plan
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BP	before present
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal-EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCC	California Conservation Corps
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife

CDOF	California Department of Finance
CDRRR	California Department of Resources Recycling and Recovery
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHRIS	California Historical Resources Information System
Cl	chloride
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
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CWD	Central Water District
dB	decibel
dbh	diameter at breast height
dBA	A-weighted decibel
DOE	determination of eligibility
DPS	distinct population segment
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EM	Environmental Monitor

EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ETMP	Environmental Training and Monitoring Program
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
GHG	greenhouse gas
GIS	Geographic Information System
GPS	global positioning system
GWP	global warming potential
HCP	Habitat Conservation Plan
HRI	California Historical Resources Inventory
HSCERP	Hazardous Substance Control and Emergency Response Plan
H_2S	hydrogen sulfide
HSP	Health and Safety Plan
in/sec	inch per second
IPCC	International Panel on Climate Change
IS	Initial Study
kcmil	thousand-circular-mil
KOP	Key Observation Point
kV	kilovolt
lb. per sq. ft.	pound(s) per square feet
L_{dn}	day-night noise level
L_{eq}	equivalent noise level
L_{max}	maximum noise level
LOS	level of service
LRA	Local Responsibility Area
L_x	statistical noise descriptor (*e.g.*, L_{10}, L_{50}, or L_{90})

MBTA	Migratory Bird Treaty Act
MBUAPCD	Monterey Bay Unified Air Pollution Control District
METRO	Santa Cruz Metropolitan Transit District
mg/m^3	milligrams per cubic meter
$\mu g/m^3$	micrograms per cubic meter
MMCRP	Mitigation Monitoring Compliance and Reporting Program
MMRP	Mitigation Monitoring and Reporting Program
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
mph	miles per hour
MRWMD	Monterey Regional Waste Management District
MRZ	Mineral Resource Zone
MTBE	methyl tert-butyl ether
Mw_{max}	maximum value of magnitude
N	nitrogen
NAAQS	National Ambient Air Quality Standard
NAHC	Native American Heritage Commission
NBMP	Nesting Bird Management Plan
NCCAB	North Central Coast Air Basin
NCCP	Natural Community Conservation Plan
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NO_X	Nitrogen Oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

NWIC	Northwest Information Center
O_3	ozone
O&M	operation and maintenance
OES	Santa Cruz Office of Emergency Services
OHP	California Office of Historic Preservation
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbons
Pb	lead
PEA	Proponent's Environmental Assessment
PGA	peak ground acceleration
PG&E	Pacific Gas & Electric Company
$PM_{2.5}$	particulate matter less than 2.5 micrometers in aerodynamic diameter
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PTC	Permit to Construct
PVFPD	Pajaro Valley Fire Protection District
PVUSD	Pajaro Valley Unified School District
PVWMA	Pajaro Valley Water Management Agency
RMS	root mean square
ROW	right-of-way
RTP	Santa Cruz County Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
Sa	spectral acceleration
SB	Senate Bill
SCCCVC	Santa Cruz County Conference and Visitor's Center

SCCFD	Santa Cruz County Fire Department
SCCPD	Santa Cruz County Parks Department
SCCRTC	Santa Cruz County Regional Transportation Commission
SCLTS	Santa Cruz long-toed salamander
SCMU	Santa Cruz Municipal Utilities
SCRSWS	Santa Cruz County Recycling and Solid Waste Services
SCCRTC	Santa Cruz County Regional Transportation Commission
SF_6	sulfur hexafluoride
SFHA	Special Flood Hazard Area
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act of 1975
SMGB	State Mining and Geology Board
SO_2	sulfur dioxide
SO_X	sulfur oxides
sp.	Species (singular)
SPCC	Spill Prevention, Control, and Countermeasure
spp.	Species (plural)
SR	State Route
SRA	State Responsibility Area
ssp.	subspecies
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load
TMP	Transportation Management Plan
TSP	tubular steel pole
UNFCCC	United Nations Framework Convention on Climate Change
U.S.	United States
US 101	U.S. Highway 101
USDOT	U.S. Department of Transportation

USFWS	U.S. Fish and Wildlife Service
v/c	traffic volume-to-road capacity
VOC	Volatile Organic Compound
WDPW	City of Watsonville Department of Public Works
WDR	Waste Discharge Requirements
WoS	Waters of the State of California
WoUS	Waters of the United States
WRCC	Western Regional Climate Center

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PROJECT SUMMARY AND ENVIRONMENTAL DETERMINATION

1. Project Title
Santa Cruz 115-kV Reinforcement Project
Pacific Gas and Electric Company (PG&E) Application No. 12-01-012

2. Lead Agency Name and Address
California Public Utilities Commission
Energy Division
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

3. Contact Person and Phone Number
Lisa Orsaba, Project Manager
Energy Division
Phone: (415) 703-1966
E-mail: lob@cpuc.ca.gov

4. Project Location
The proposed project would be located in the unincorporated communities of Amesti, Corralitos, Day Valley, and Aptos in Santa Cruz County, California, northeast of Aptos and north of Watsonville.

5. Project Sponsor's Name and Address
Pacific Gas and Electric Company
77 Beale Street
San Francisco, California 94105

6. General Plan Designation
The project corridor is located in the North County Planning Area as designated by the Santa Cruz County General Plan. Land use designations include: Parks and Recreation, Agriculture, Public Facility, Suburban Residential, Urban Low Residential, and Rural Residential.

7. Zoning
Most of the project corridor has been designated by the County of Santa Cruz Zoning Ordinance as agriculture, commercial agriculture, residential agriculture, and special use. Single-family residential areas are located near the City of Watsonville and the communities of Cerritos and Freedom.

8. Description of the Project

The proposed project includes the following primary components:

- Rebuilding approximately 7.1 miles of the existing Green Valley-Camp Evers 115-kilovolt (kV) Power Line (**Northern Alignment**) from a single-circuit line to a double-circuit line by replacing the existing wood power poles with tubular steel poles (TSP) and installing new conductors.
- Constructing an approximately 1.7-mile long single-circuit 115-kV power line in an existing distribution right-of-way (ROW) (**Cox-Freedom Segment**) from the Northern Alignment to Rob Roy Substation.
- Installing new components at **Rob Roy Substation** in order to accommodate the new 115 kV circuit and installing TSPs to accommodate the interconnection of the existing Green Valley-Rob Roy 115-kV Power Line and Rob Roy-Paul Sweet 115- kV Power Line into the modified Rob Roy Substation.

9. Surrounding Land Uses and Setting

The predominant development pattern is a mix of low-density residential, open space, and agricultural land uses. The agricultural areas are predominantly apple orchards, berry orchards, livestock pastures, and row crops.

10. Other Public Agencies Whose Approval is Required

PG&E may be required to obtain the permits listed in Table SUM-1.

Table SUM-1: Potentially Required Permits and Approvals

Permit/Authorization	Agency	Requirement
Incidental Take Permit	U.S. Fish and Wildlife Service	Required if incidental take of Santa Cruz long-toed salamander could occur
National Pollutant Discharge Elimination System (NPDES) Construction General Permit	State Water Resources Control Board	Disturbance of more than 1 acre of land during construction
Encroachment Permit	Santa Cruz County	Work within County road rights of way and property
Building Permit	Santa Cruz County	Attachment of control enclosure to foundation at Rob Roy Substation
Grading Permit	Santa Cruz County	Grading at Rob Roy Substation
Significant Tree Removal Permit	Santa Cruz County	Removal of trees in an area considered “sensitive habitat”
Section 404 Permit (Dredge and Fill)	U.S. Army Corps of Engineers	Required for discharge of fill material at wetland work areas.
Section 401 (Water Quality Certification/Waste Discharge Requirements)	Central Coast Regional Water Quality Control Board	Required for discharge of fill material at wetland work areas

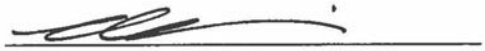
ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the proposed project, involving at least one impact that is potentially significant but can be reduced to "less than significant with implementation of mitigation" 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.	☐



October 17, 2013

Lisa Orsaba, Project Manager
Energy Division
California Public Utilities Commission

Date

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1 INTRODUCTION

1.1 PROPOSED PROJECT

1.1.1 Overview

Pacific Gas and Electric Company (PG&E), a regulated California utility, filed an application with the California Public Utilities Commission (CPUC) on January 25, 2012, for a Permit to Construct (PTC) the Santa Cruz 115-kilovolt (kV) Reinforcement Project (proposed project). The application was deemed complete by the CPUC on April 24, 2012. PG&E is proposing to:

- Rebuild approximately 7.1 miles of the existing Green Valley-Camp Evers 115-kilovolt (kV) Power Line (**Northern Alignment**) from a single-circuit line to a double-circuit line by replacing the existing wood power poles with tubular steel poles (TSP) and installing new conductors
- Construct an approximately 1.7-mile long single-circuit 115-kV power line in an existing distribution right-of-way (ROW) (**Cox-Freedom Segment**) from the Northern Alignment to Rob Roy Substation
- Install new components at **Rob Roy Substation** in order to accommodate the new 115 kV circuit and install TSPs to accommodate the interconnection of the existing Green Valley-Rob Roy 115-kV Power Line and Rob Roy-Paul Sweet 115- kV Power Line into the modified Rob Roy Substation.

1.1.2 Project Objective

The proposed project would improve the reliability of the transmission system in the Santa Cruz area and thereby prevent potential large-scale service interruptions if there are outages in the existing local electricity supply system.

1.1.3 Project Location

The proposed project is located in an unincorporated area of Santa Cruz County, California, generally between the City of Watsonville and the unincorporated community of Aptos. The project corridor is aligned roughly northwest to southeast, generally parallel to and northeast of State Route 1 (SR-1). The existing power line connects the Green Valley Substation (located on Minto Road, about 0.25 miles east of Green Valley Road, north of the City of Watsonville) to the Rob Roy Substation (located on Freedom Boulevard about 0.6 miles north of SR-1 in unincorporated Aptos). The project corridor is shown in Figure 1.1-1.

Figure 1.1-1: Proposed Project Location/Regional Map



1.2 ENVIRONMENTAL ANALYSIS

1.2.1 CEQA Process

This Initial Study (IS) has been prepared pursuant to the California Environmental Quality Act (CEQA) (Pub. Res. Code § 21000 *et seq.*), the amended state CEQA Guidelines (14 Cal. Code Regs. § 15000 *et seq.*), and CPUC CEQA Rule 2.4 (CEQA Compliance). The purpose of this IS is to determine if the proposed project may have a significant effect on the environment, and provide the lead agency, the CPUC, with information to use as the basis for deciding whether to prepare an Environmental Impact Report or Negative Declaration.

1.2.2 CEQA Lead Agency

The CPUC is the lead agency for review of the proposed project under CEQA because it has the principal responsibility for approving the proposed project, *i.e.*, it must decide whether to approve or deny the PTC.

1.2.3 Initial Study

This IS presents an analysis of potential effects of the proposed project on the environment. This IS is based, in part, on information from PG&E's Proponent's Environmental Assessment (PEA) and associated submittals, available online at http://www.cpuc.ca.gov/environment/info/panoramaenv/SantaCruz_115kVReinforcement/SantaCruz_115%20Reinforcement%20Project.html.

The proposed project could have direct and indirect impacts on the environment. The following environmental parameters were addressed in this IS based on the potential effects of the proposed project and the potential growth-inducing and cumulative effects of the proposed project in combination with other projects:

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

This IS has been organized into the following sections:

- ***Chapter 1: Introduction.*** Provides an overview of the proposed project and the CEQA process.
- ***Chapter 2: Project Description.*** Presents the proposed project's objectives and provides an in-depth description of the proposed project, including construction details and methods.
- ***Chapter 3: Environmental Setting and Environmental Impacts.*** Describes existing conditions, analyzes potential environmental impacts of the proposed project, and identifies mitigation measures to reduce potentially significant impacts to less-than-significant levels.
- ***Chapter 4: References.*** Lists the sources of information used to prepare the IS.
- ***Chapter 5: Report Preparation.*** Lists the preparers of the IS and identifies public agencies consulted during preparation of the IS.
- ***Appendix A: Construction Emissions Calculations.*** Includes calculations for air pollutant emissions and greenhouse gas emissions.
- ***Appendix B: Santa Cruz Long-toed Salamander Habitat Assessment.*** Assesses the suitability of the area to serve as Santa Cruz long-toed salamander habitat.
- ***Appendix C: Relevant Santa Cruz County General Plan Policies.*** Lists relevant policies from the Santa Cruz County General Plan.

1.4 PUBLIC AND AGENCY INVOLVEMENT

During PG&E's project planning phase, the public and several agencies provided input after being notified of the proposed project, as described in Section 1.5 of the PEA. Notified agencies, municipalities, and organizations included the following:

- California Department of Fish and Wildlife (CDFW)
- U.S. Fish and Wildlife Service (USFWS)
- Native American Heritage Commission
- Santa Cruz County Planning Department
- Santa Cruz County Public Works Department
- Santa Cruz County Parks Department
- City of Scotts Valley
- City of Capitola
- City of Watsonville
- University of California, Santa Cruz

PG&E held public open houses on October 25, 2011, and October 27, 2011. Approximately thirty residents attended the open houses to discuss the proposed project with PG&E staff.

Landowner concerns were primarily related to pole locations, notification to the public of the proposed project's design and construction, and construction scheduling.

The CPUC has received additional public concerns during preparation of this IS. Key concerns include visual impacts, impacts to biological resources, impacts to public safety, impacts to traffic safety, and consideration of alternative routes.

The CDFW, the USFWS, and Santa Cruz County Planning were consulted regarding the proposed project's impacts and protection measures for, among other species, the Santa Cruz long-toed salamander (a federally endangered and state fully protected species), bald eagles, other avian species, bats, Monterey spineflower, and heritage trees. Concerns regarding these resources are addressed in this IS.

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2 PROJECT DESCRIPTION

2.1 INTRODUCTION

Pacific Gas & Electric Company (PG&E) filed an application with the CPUC on January 25, 2012, for a Permit to Construct (PTC) (Application No. 12-01-012) the Santa Cruz 115-kV Reinforcement project (proposed project), deemed complete on April 24, 2012. The proposed project would provide an additional circuit between the Green Valley Substation and the Rob Roy Substation by:

- **Northern Alignment:** Converting an existing 7.1 miles of single-circuit, 115-kV power line into a double-circuit, 115-kV power line by:
  - Replacing existing wood transmission poles with an average height of 60 feet tall with new tubular steel poles (TSP) with an average height of 90 feet tall
- **Cox-Freedom Segment:** Constructing a new, approximately 1.7-mile-long, single-circuit, 115-kV power line along an existing distribution alignment by:
  - Installing 4 new TSPs averaging 98 feet tall
  - Replacing existing distribution wood poles averaging 39 feet tall with new wood transmission poles averaging 89 feet tall
- **Rob Roy Substation:** Modifying the Rob Roy Substation and existing power lines into the substation to accommodate the new circuit and install 1 new TSP and replace existing wood structures with 3 new TSPs within the substation area, with an average height of 84 feet tall

The project corridor is shown in Figure 2.1-1. The proposed project would be located in unincorporated Santa Cruz County.

2.2 PROJECT OBJECTIVES

The proposed project is needed to improve the area electrical system's capacity and reliability. The existing 115-kV system serving the Santa Cruz area was constructed and put into service in the 1970s. The only upgrade since the system was built was the addition of voltage support equipment at the Paul Sweet Substation in the 1970s (Figure 2.2-2). The Rob Roy and Green Valley Substations and associated power lines have never been upgraded, while the population and demand in the service area has increased substantially since 1970. Current peak winter demand has reached 175 megawatts, which is almost 60 percent higher than the demand recorded in 1970.

Figure 2.1-1: Project Corridor

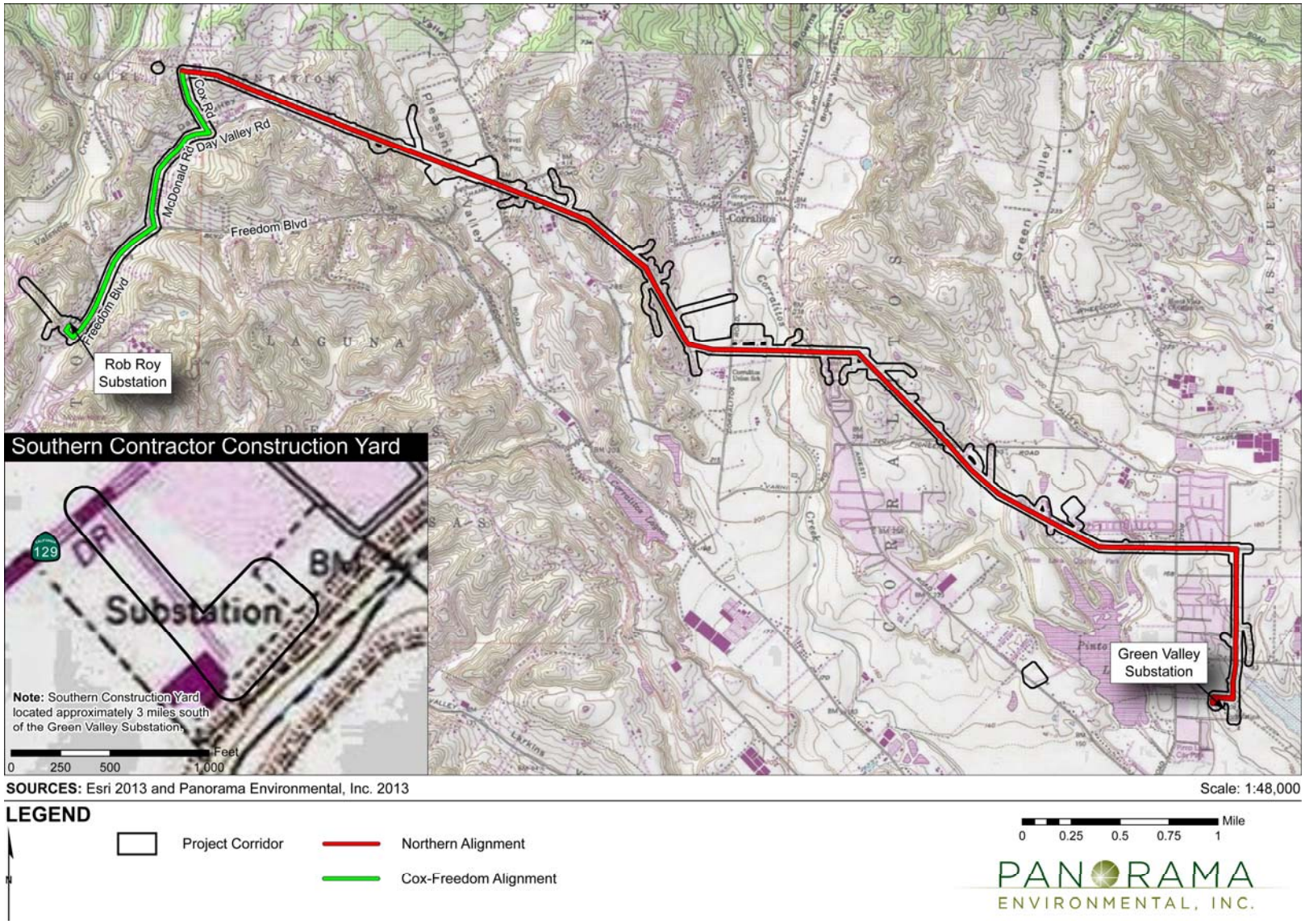


Figure 2.1-2: Existing Power System in the Project Corridor Region



The proposed project would improve system reliability and capacity by adding another circuit between Green Valley Substation and Rob Roy Substation. The additional circuit would provide reinforcement during an outage on one of the two lines.

Several alternatives to the proposed project were considered during the planning phases of the project. CEQA does not require a review of alternatives in Initial Study/Mitigated Negative Declarations where the proposed project would result in no significant environmental impacts after mitigation (CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3 (Guidelines), § 15126.6, subd. (a) and (f)(2)(A); Assigned Commissioner's Ruling dated October 16, 2001, A.01-07-004). The project corridor was chosen because it meets the proposed project's objectives and routing criteria, while having the least impacts to sensitive resources such as biological resources. A description of the alternatives considered is provided in the PEA.

2.3 EXISTING SYSTEM

The existing electrical power grid consists of two single-circuit 115-kV wood pole power lines located in separate power line corridors—the Green Valley-Rob Roy-Paul Sweet Corridor on the south side of the service area, and the Green Valley-Camp Evers Corridor to the north (Figure 2.1-2). The two corridors join at the junction of the Camp Evers Tap located at the Camp Evers Substation (Figure 2.1-2). The substations that connect to these corridors include Green Valley Substation at the southeastern end, Camp Evers Substation at the northwestern end (from Camp Evers Tap), and Paul Sweet Substation and Rob Roy Substation along the southern corridor (Figure 2.1-2). All power to the area comes from Green Valley Substation, which provides almost 100 percent of the Santa Cruz area loading and serves electric power customers throughout Santa Cruz County.

Power is transmitted from the Green Valley Substation via single-circuit power lines along the Green Valley-Rob Roy-Paul Sweet Corridor and the Green Valley-Camp Evers Corridor (Figure 2.1-2). Large-scale service interruptions could occur if there are overlapping outages in the existing electricity supply system. The alternate transmission corridors become heavily loaded when an outage occurs in the existing system and power may be cut to customers to reduce this load. The threat of power outages increases during winter months when system demand is greater, and winter storms are more likely to cause damage. This situation could result in power outages and inability to supply customers during winter storm events.

2.4 PROJECT LOCATION

2.4.1 Regional Context

The project corridor is located in unincorporated Santa Cruz County, California, northeast of Aptos and north of Watsonville, and within the unincorporated communities of Amesti, Corralitos, Day Valley, and Aptos, as shown on Figure 1.1-1. Terrain includes rolling hills, agricultural valleys and grasslands, and low ridgelines forested with mature trees. The predominant development pattern throughout the project corridor is a mix of open space, low-

density residential, and agricultural land uses. The agricultural areas are predominantly apple orchards, berry orchards, livestock pastures, and row crops.

2.4.2 Project Corridor

The project corridor includes the proposed power line alignment and right-of-way, access roads, staging areas, landing zones, contractor storage yards, and the Rob Roy Substation. The project corridor is defined as a 150-foot buffer around all project features and on either side of the alignment (for a 300-foot total width around the power line) and 100 feet around staging and laydown areas and access roads as shown in Figures 2.4-1 through 2.4-15. The final locations of any of the proposed project features may be adjusted and moved within the project corridor based on final engineering and field conditions. Impacts of any activity within the whole project corridor, therefore, are addressed in this IS.

The existing 115-kV alignment is located in an easement. There is a building restriction on the existing easement that limits structures and uses that have the potential to conflict with the safe operation of the power line. The easement along the Northern Alignment is generally 60 feet wide. The proposed alignment may diverge from the current alignment in some areas to improve accessibility or to minimize impacts to trees or other resources. This easement may be expanded in some locations to accommodate the rebuilt line. Easement expansion would be pursued by the applicant (PG&E) through landowner agreements. Any land rights issues would be resolved in subsequent negotiations and/or condemnation proceedings in the proper jurisdiction, following the decision by the CPUC on PG&E's application. New easements would not impinge on existing structures. The present centerline of the building restriction would be maintained and expansion would occur only on an as-needed basis.

Figure 2.4-1: Project Corridor Map 1

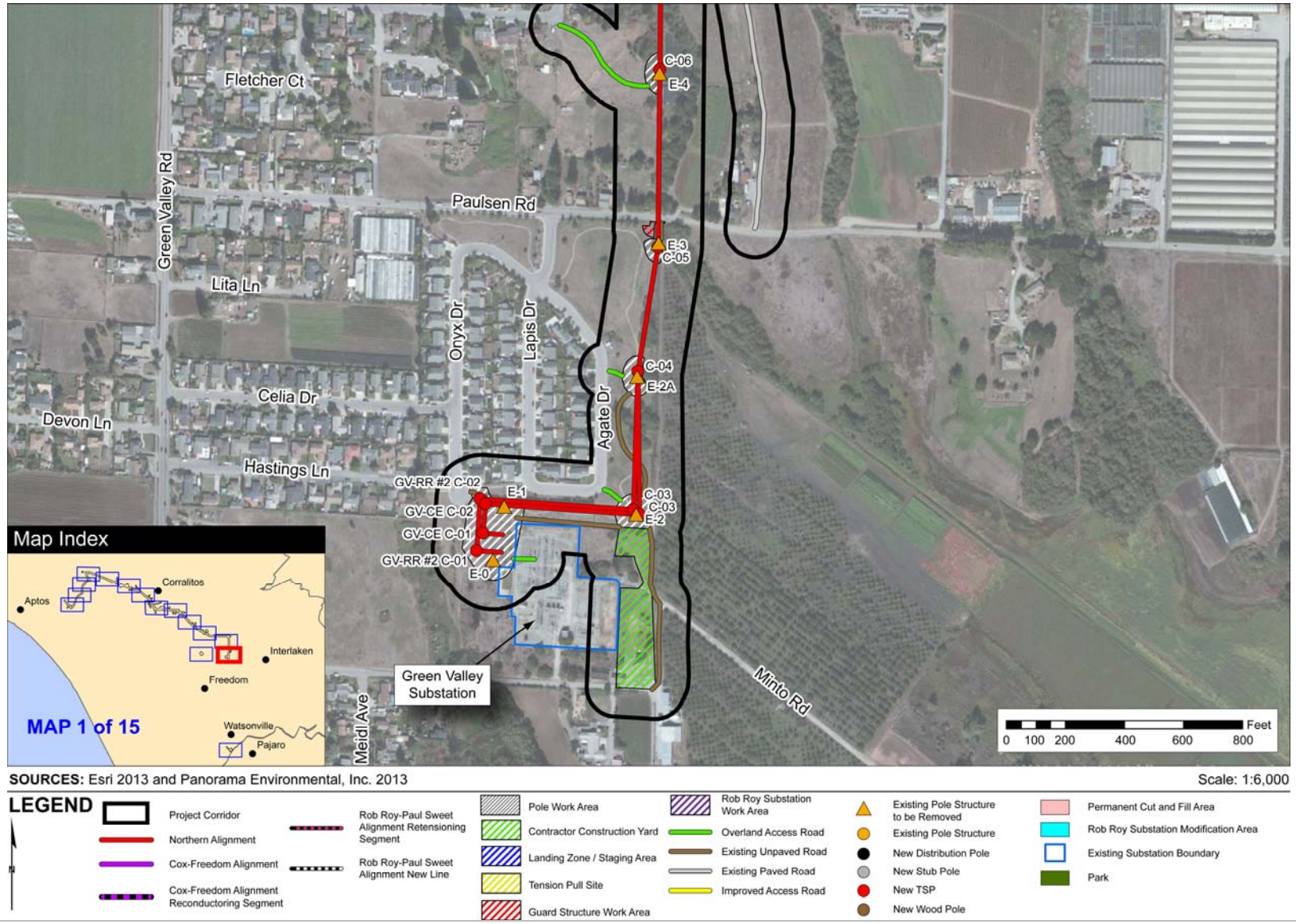


Figure 2.4-2: Project Corridor Map 2

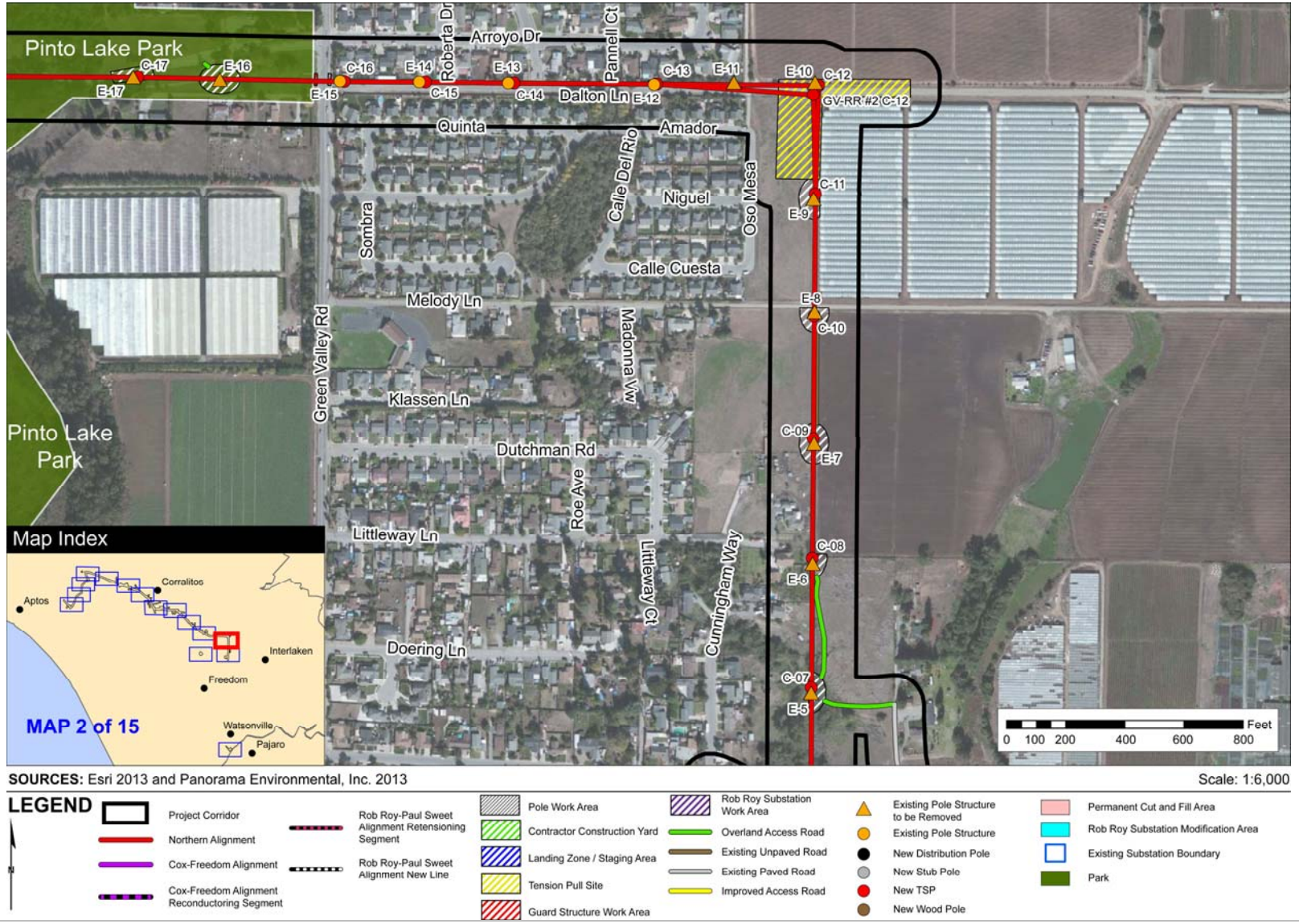


Figure 2.4-3: Project Corridor Map 3

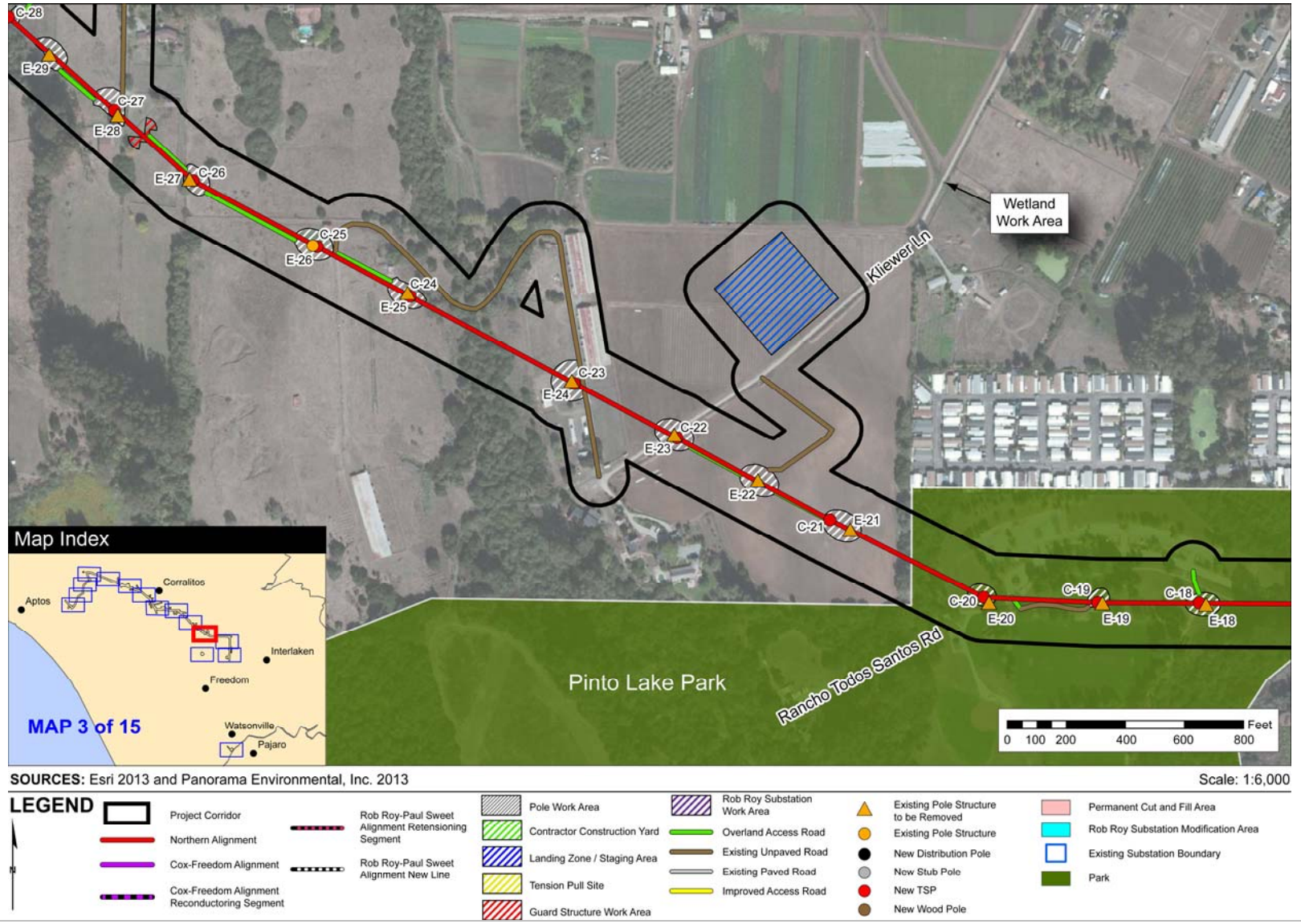


Figure 2.4-4: Project Corridor Map 4

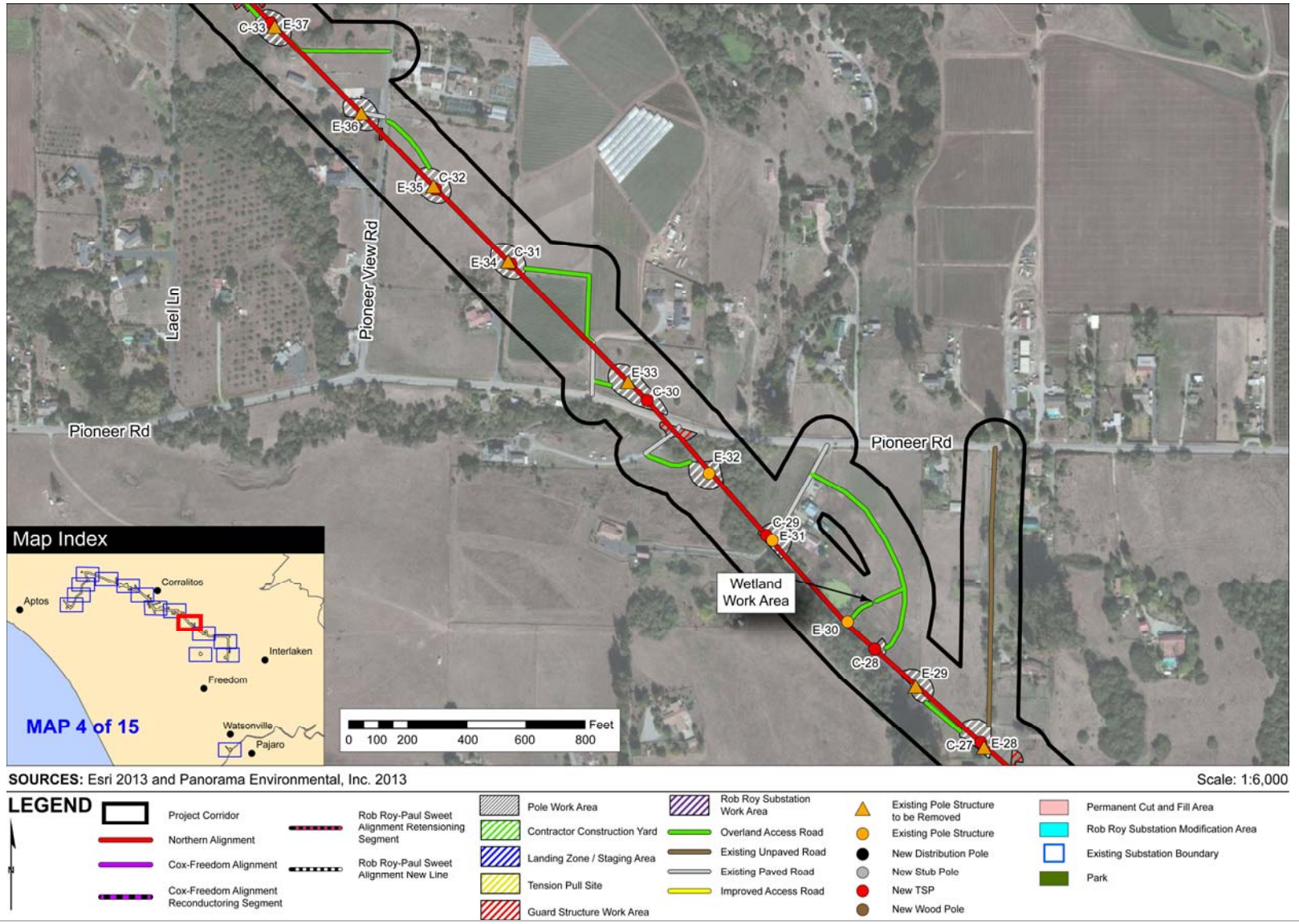


Figure 2.4-5: Project Corridor Map 5

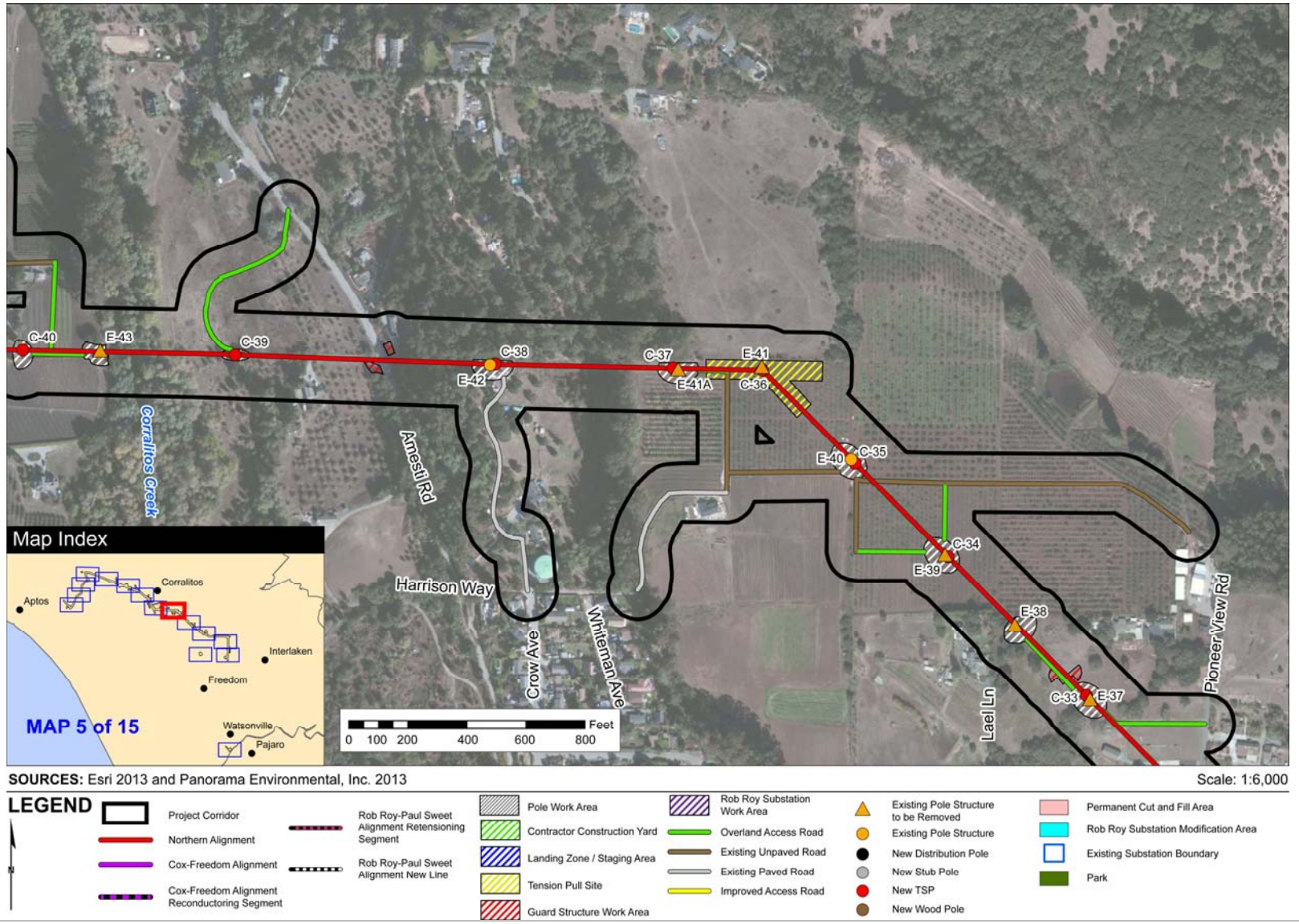


Figure 2.4-6: Project Corridor Map 6

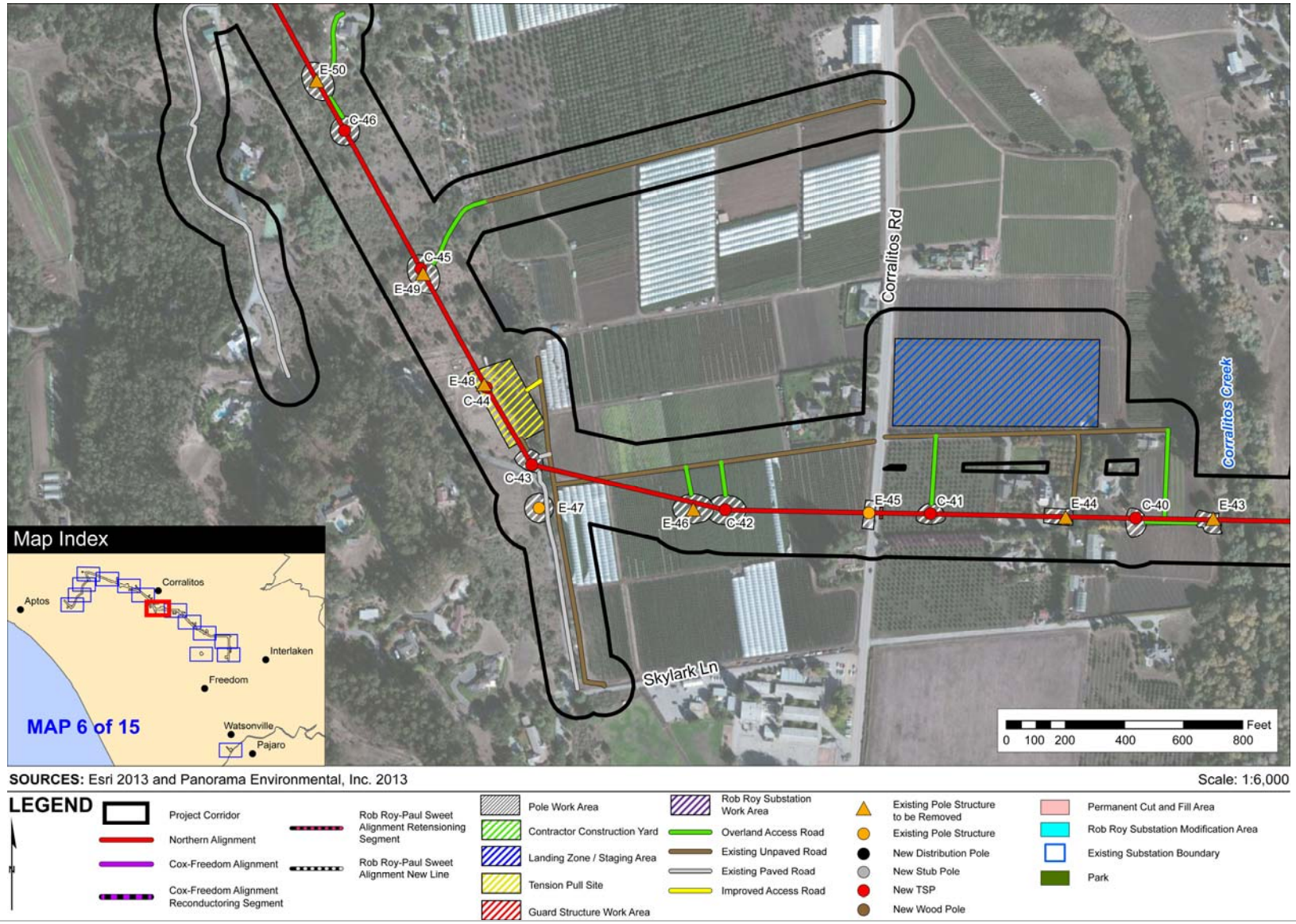


Figure 2.4-7: Project Corridor Map 7

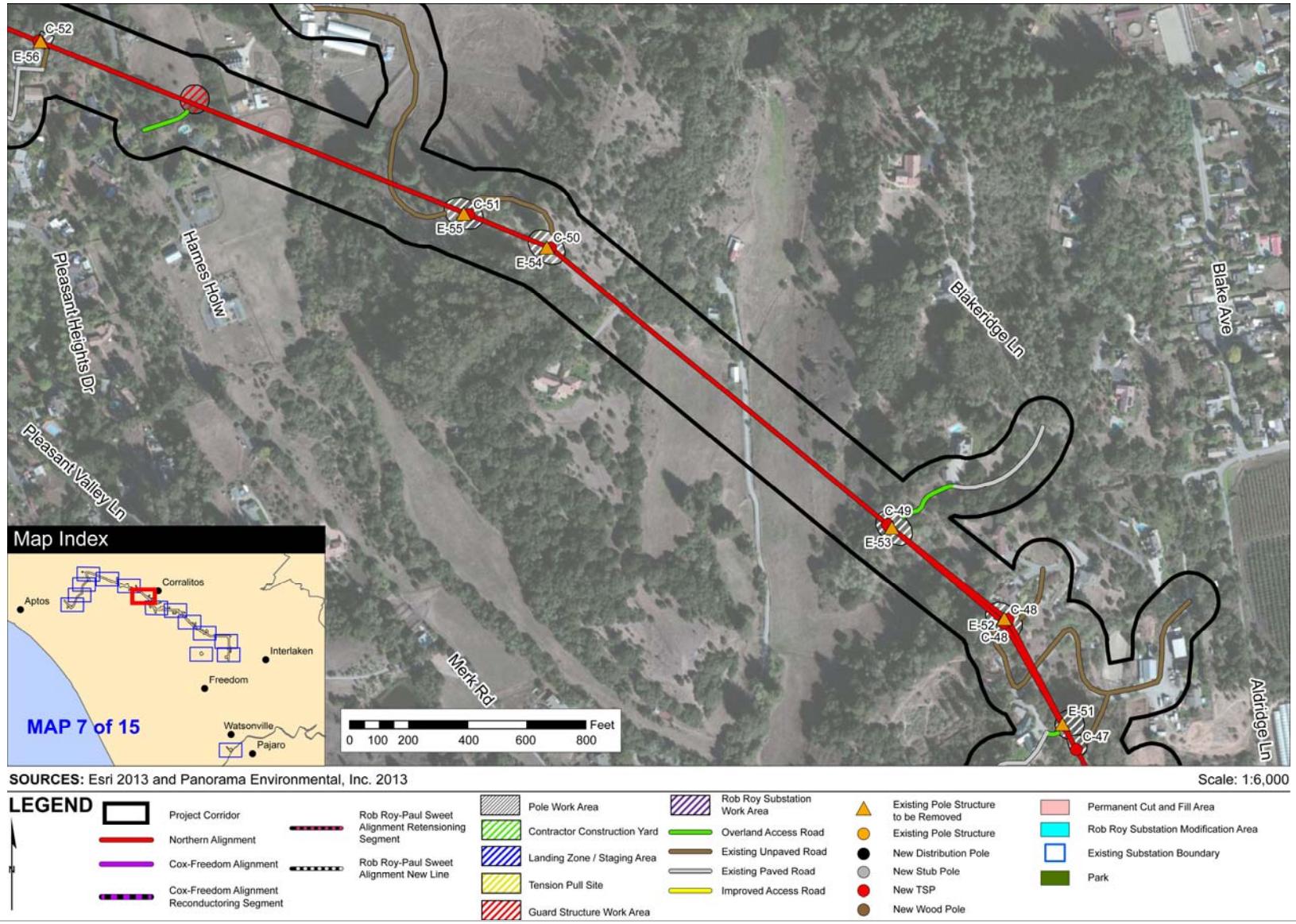


Figure 2.4-8: Project Corridor Map 8

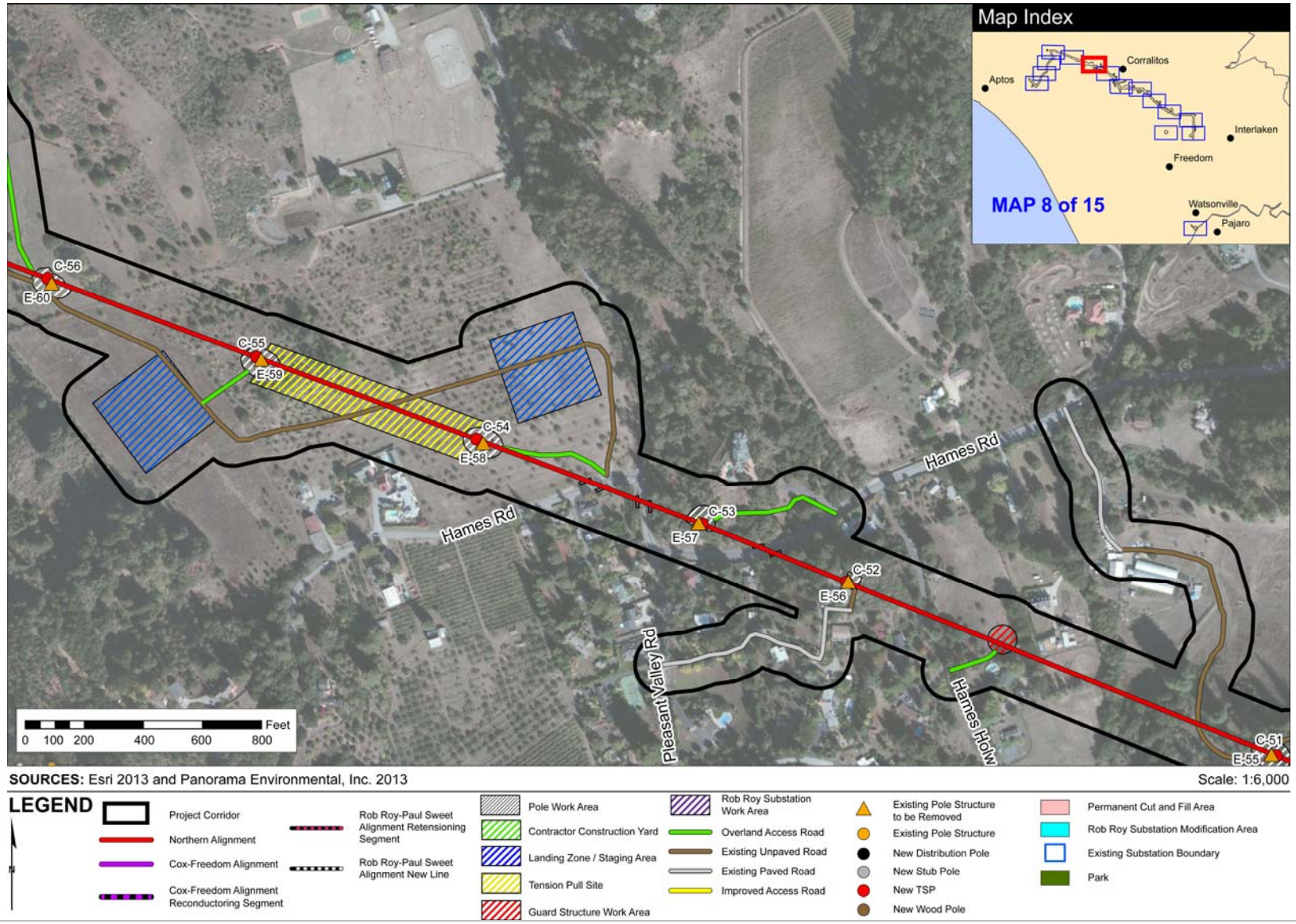


Figure 2.4-9: Project Corridor Map 9

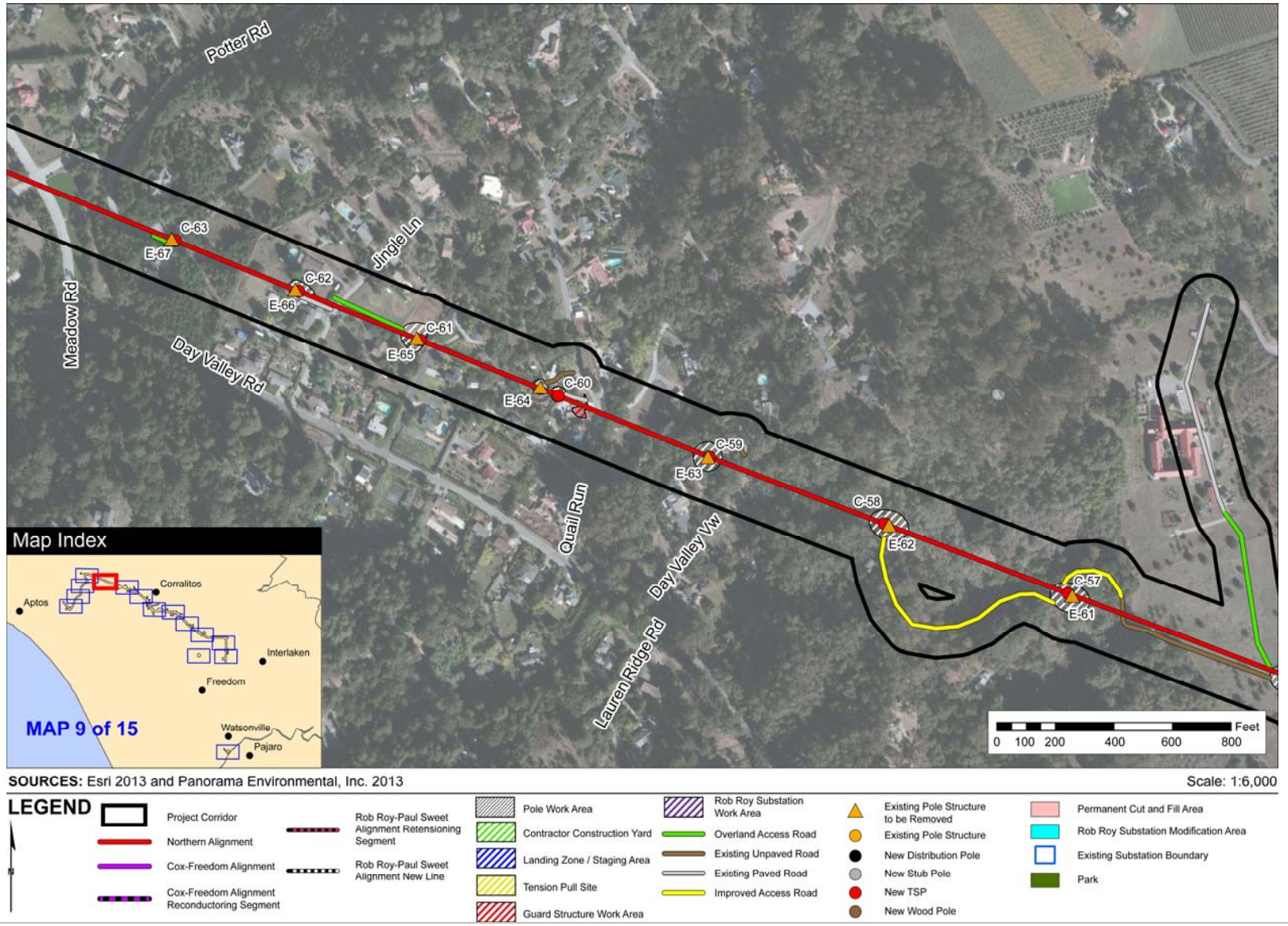


Figure 2.4-10: Project Corridor Map 10

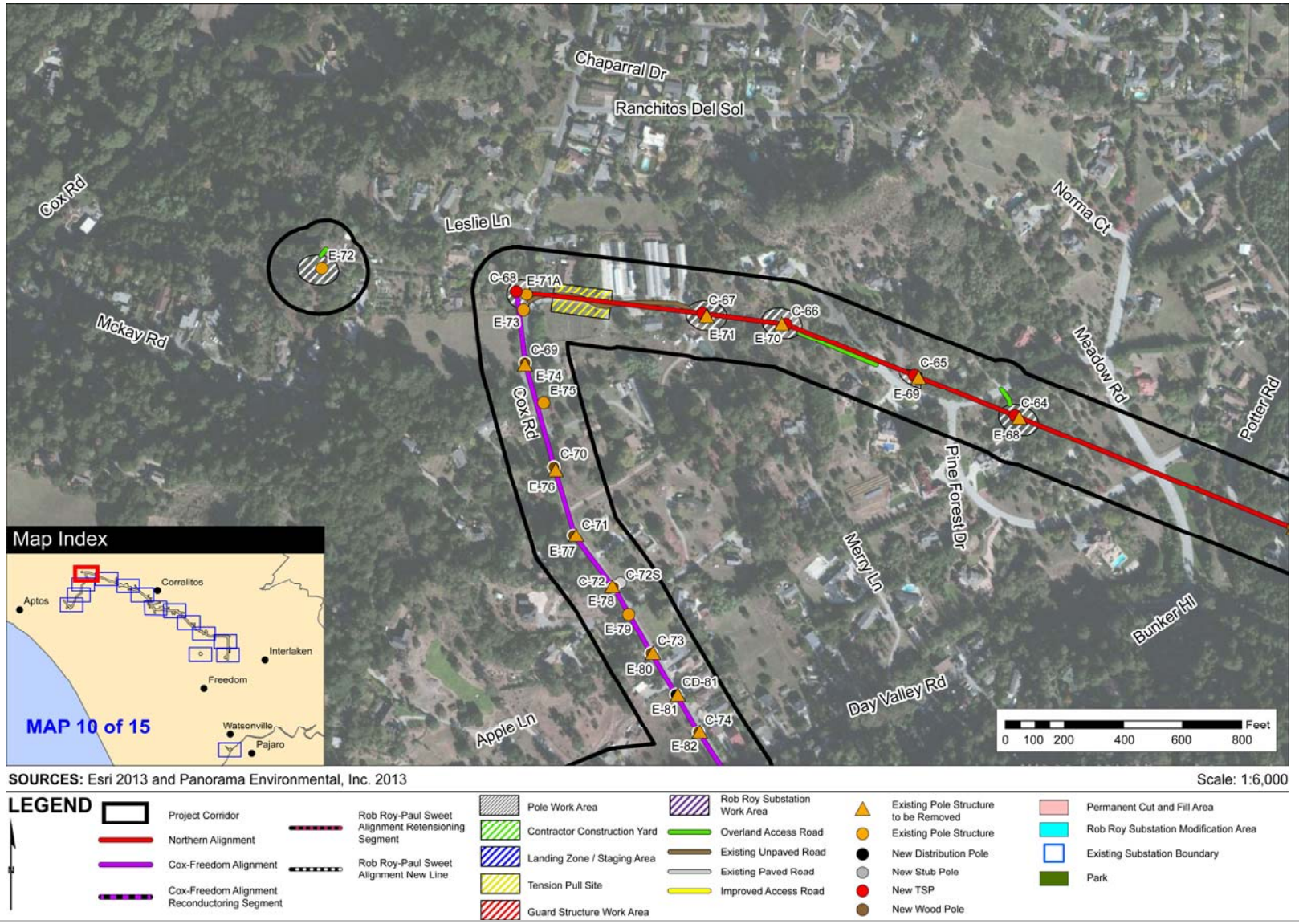


Figure 2.4-11: Project Corridor Map 11

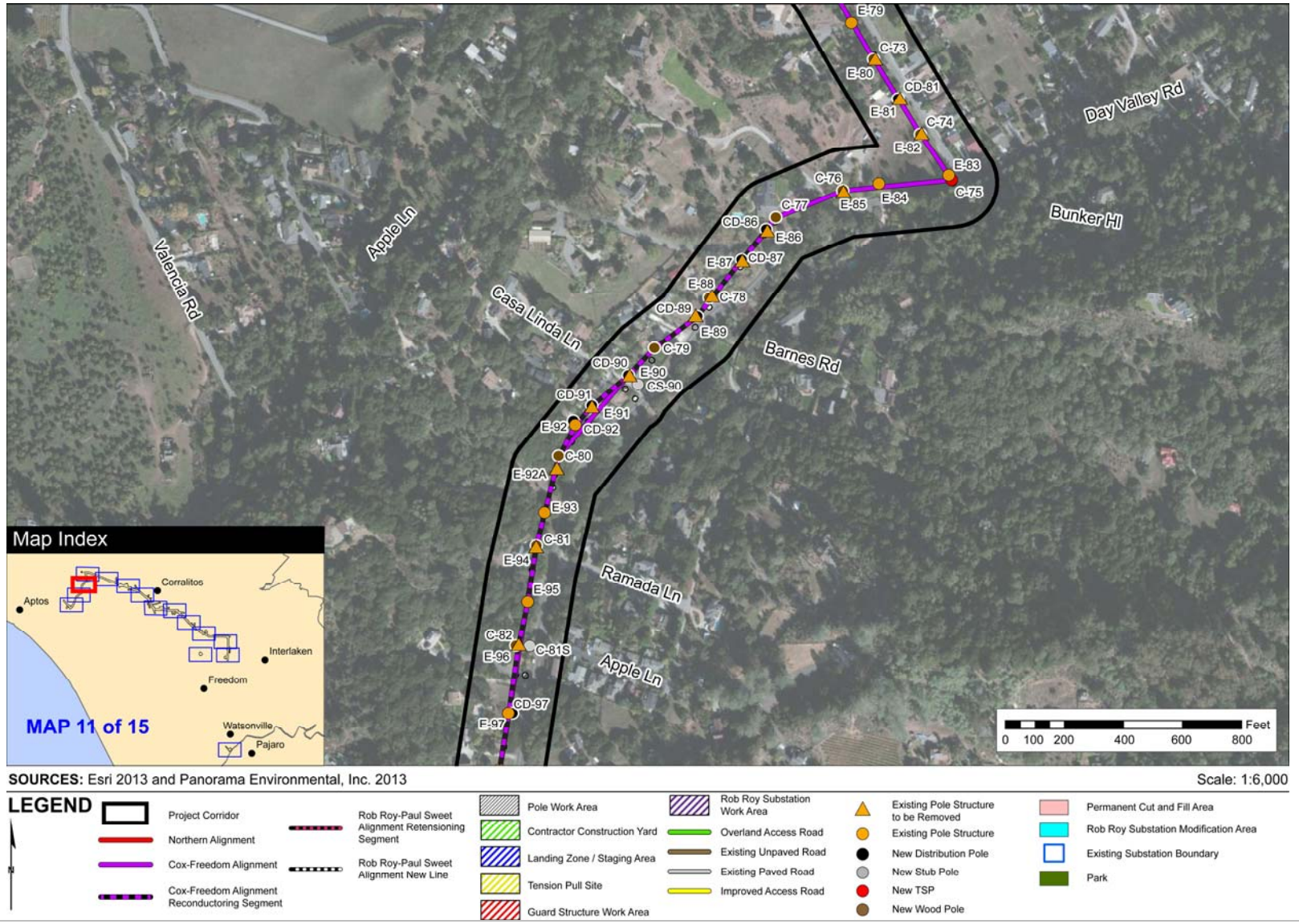


Figure 2.4-12: Project Corridor Map 12

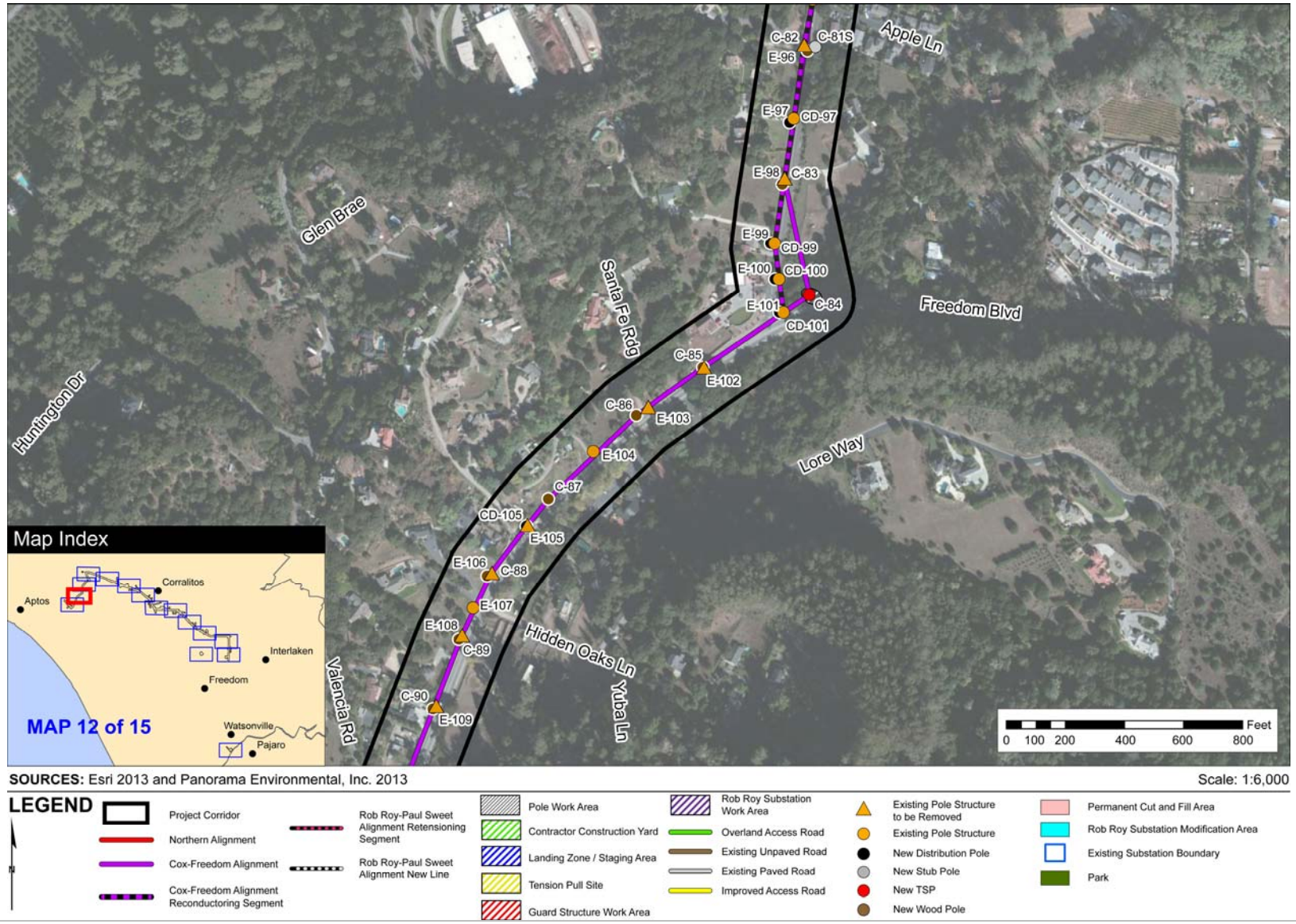


Figure 2.4-13: Project Corridor Map 13

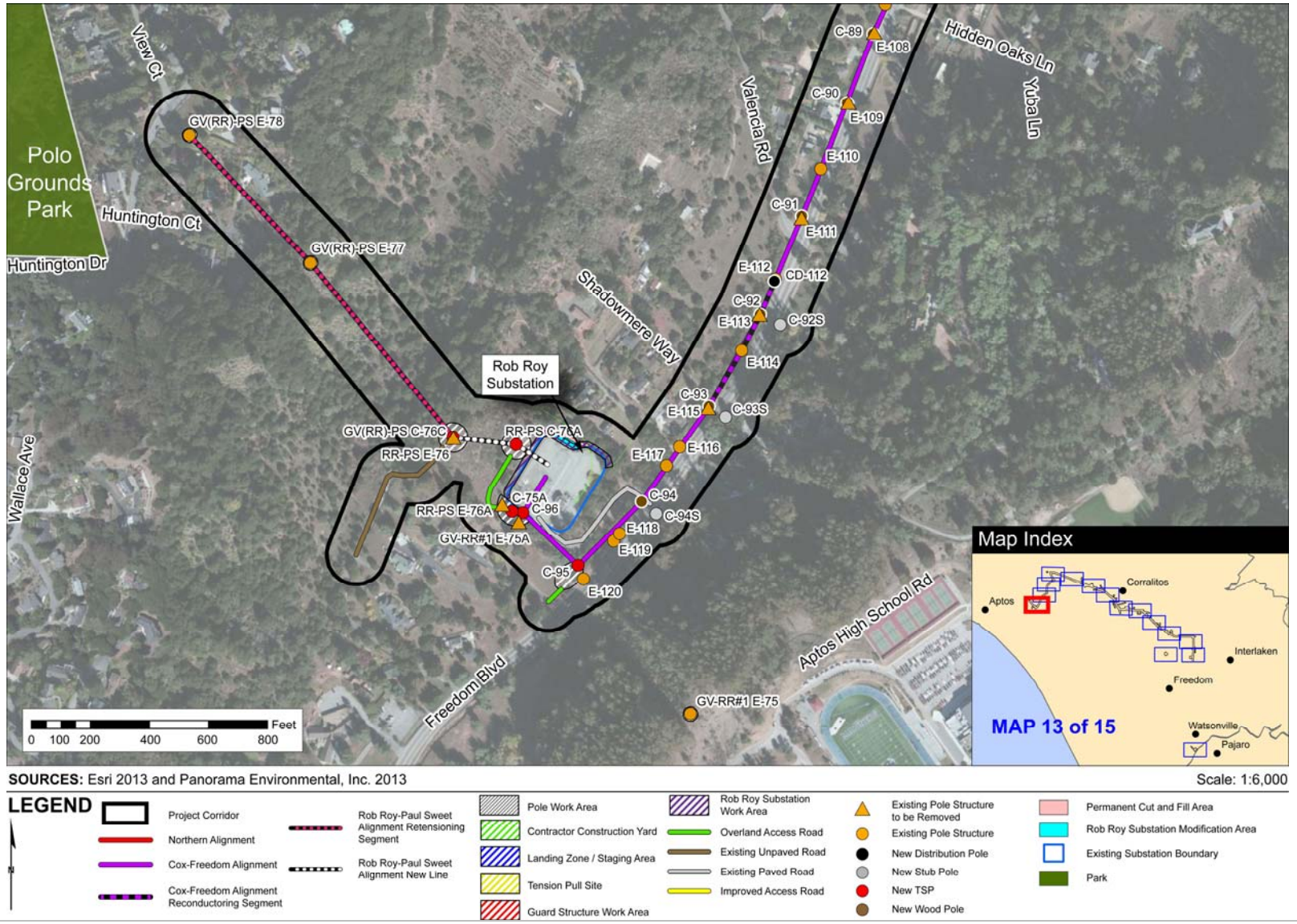


Figure 2.4-14: Project Corridor Map 14

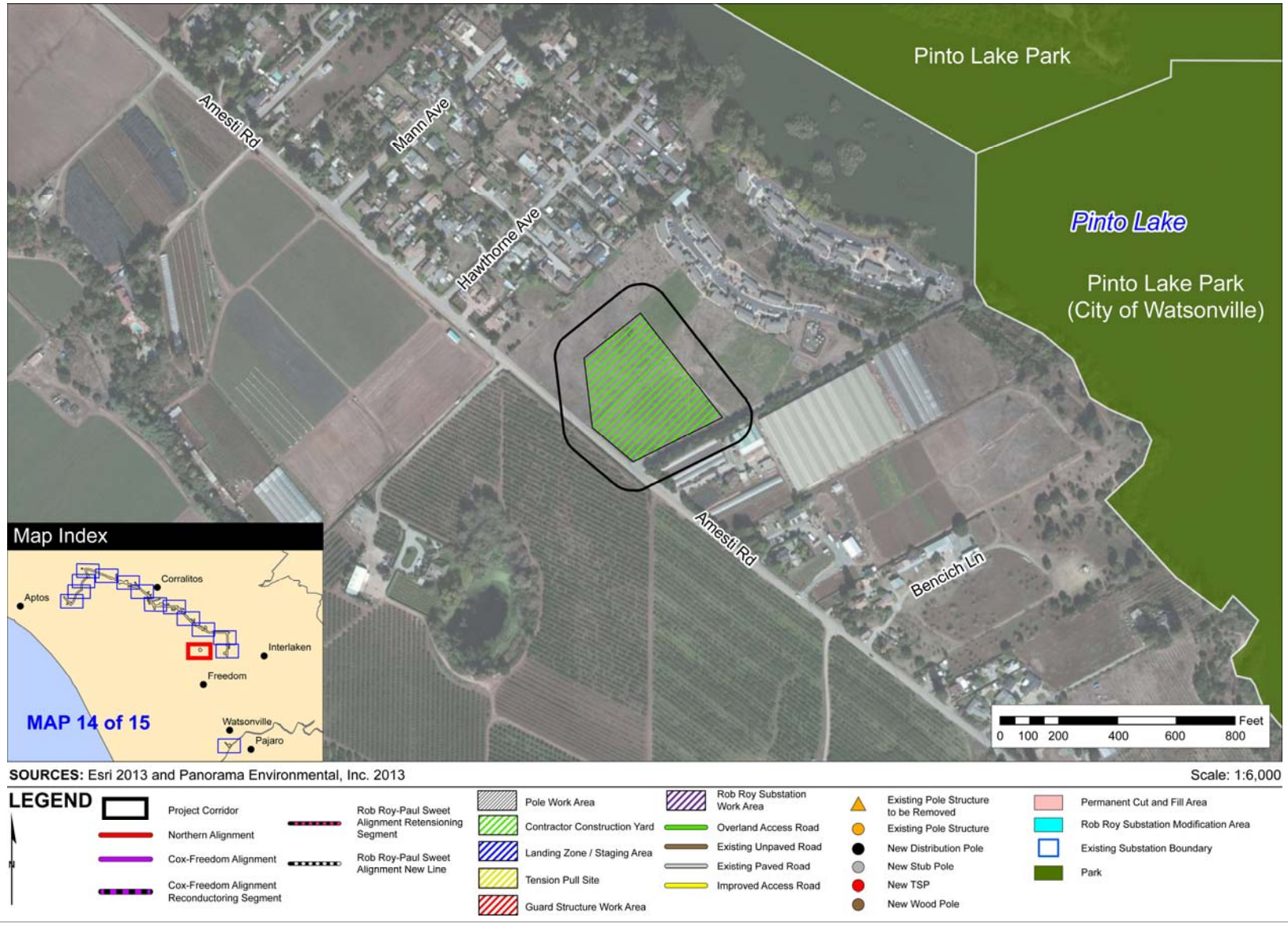


Figure 2.4-15: Project Corridor Map 15

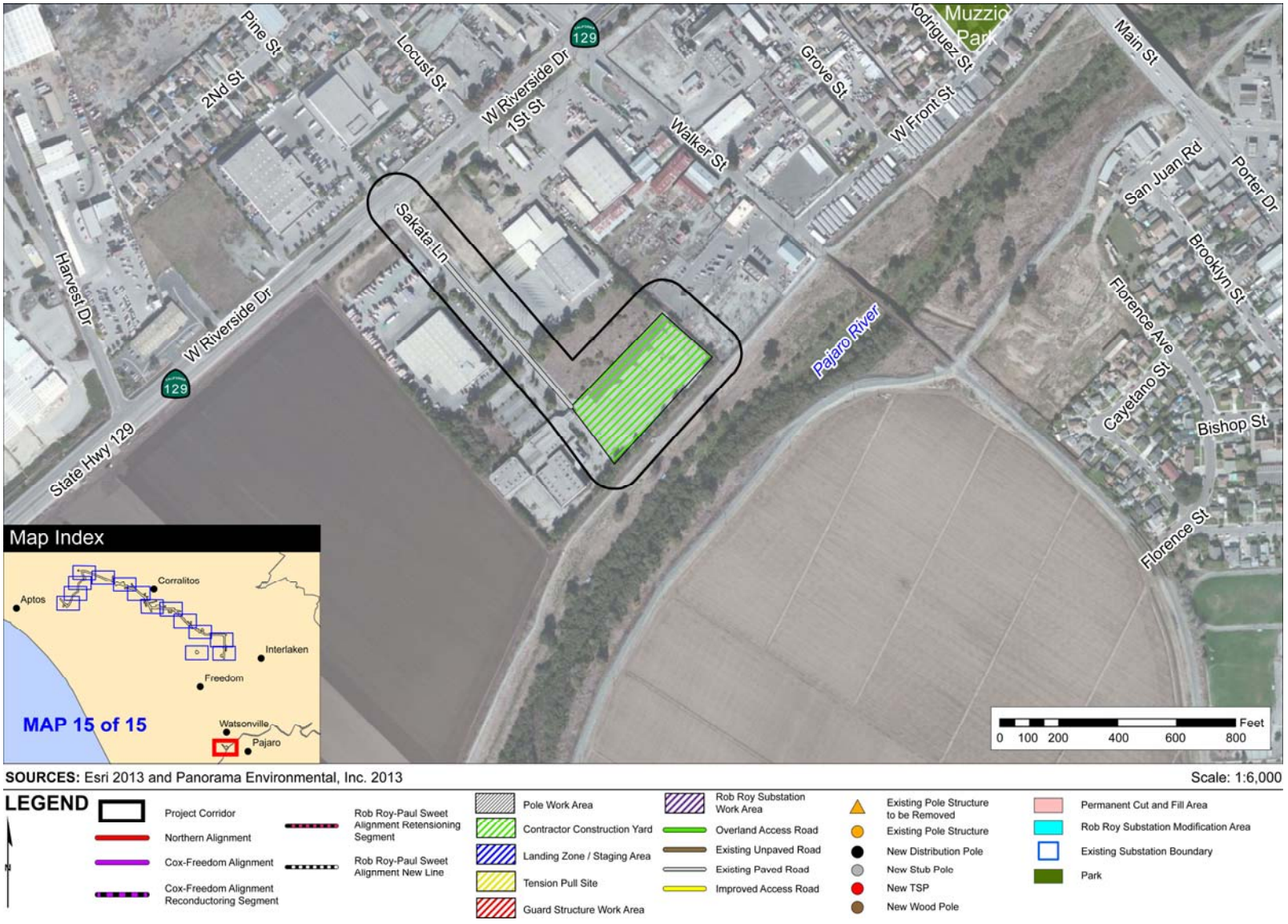


Table 2.4-1 identifies the areas along the Northern Alignment where additional right-of-way is anticipated.

Table 2.4-1: Anticipated ROW Modifications

Northern Alignment				
Span Location		**ROW Width (feet)**		**Proposed ROW Modifications**
Starting Pole	**Ending Pole**	**Existing**	**Proposed**	
C-16	C-17	49	60	Increase ROW width by approximately 11 feet to the south
C-17	C-18			
C-18	C-19			
C-31	C-32	60	67	Increase ROW width by approximately 7 feet to the southwest where the ROW crosses 225 and 285 Pioneer View Road
C-32	C-33	60 at 285 Pioneer View Road and 40 north of 285 Pioneer Road	60	Increase ROW width by approximately 20 feet within the field/orchard located north of 285 Pioneer View Road
C-33	C-34			
C-41	C-42	52	52	This span is located within a new alignment; therefore, an approximately 52-foot-wide ROW would be required, and the existing ROW would be quitclaimed, resulting in no net increase in ROW
C-52	C-53	60	70	Increase in ROW width by approximately 5 feet on both sides of the existing ROW
C-53	C-54			
C-54	C-55			
C-55	C-56			
Cox Freedom Segment				
The easement along the Cox-Freedom Segment is generally 40 feet wide. Some additional overhang easements may be required along the Cox-Freedom segment. An overhang easement of 10 feet on adjacent properties may be required in limited locations. These overhang easements would fall within the existing restricted building setback zones and, therefore, would not impact existing structures. Expanded easements would not affect environmental resources because no construction of structures or occurrence of other physical activity would be involved in expanding easements.				

2.5 PROJECT COMPONENTS

2.5.1 New Power Line Poles

Northern Alignment

Approximately 7.1 miles of the Northern Alignment would be rebuilt by converting the existing single-circuit 115-kV power line to a double-circuit 115-kV power line. The existing single-circuit wood poles would be replaced with double-circuit TSPs. PG&E would remove several poles (as identified in Table 2.5-1) and top[1] other poles. Existing poles range from single to triplicate wood structures and range in size from 35 to 77 feet tall. The new TSPs would have a maximum height of approximately 105 feet, and would have span lengths between approximately 250 and 1,600 feet.

The TSPs would be placed in line with the existing conductor and typically within 20 feet of the existing wood poles.[2] The TSPs would have an approximate diameter of 4 feet at the base and 2 feet at the top. Tangent poles would be used when the pole alignment continues in a generally straight line, and angle poles would be used when the run of poles changes direction. Typical drawings of each type of pole that would be installed are provided in Figure 2.5-1. Tangent and angle pole heights would range from approximately 54 to 105 feet. TSPs would be pre-weathered in a rust color.

Cox-Freedom Segment

The Cox-Freedom segment would include installation of 1.7 miles of single-circuit 115-kV power line using new TSPs and wood poles along the existing distribution line alignment. The existing distribution line would be collocated on the new poles where distribution poles would be replaced. TSPs and wood poles would be placed at span lengths of approximately 200 to 550 feet, skipping over intermediate distribution poles. New wood poles and TSPs would replace existing wood distribution poles, as specified in Table 2.5-1. The new poles would generally be in-line with the existing distribution line and within 20 feet of the wood poles being replaced.

TSPs would typically be used at angle points where the transmission line must change direction, whereas wood poles would typically be installed in locations where the alignment is generally straight. TSPs may be used in place of wood poles along the alignment if requested by

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[1] Topping a pole involves removing the existing 115-kV conductors and hardware, removing the top of the pole, and leaving the existing distribution underbuild intact. Pole topping is discussed in more detail in Construction Methods.

[2] Pole locations are based upon preliminary engineering data. The final pole locations would be determined during final engineering. In some areas the proposed poles may be located more than 20 feet from existing locations to avoid sensitive resources, to address local terrain conditions, or to comply with engineering considerations. In locations where a large change of conductor direction is required, two TSPs separated by up to 45 feet may be used.

Table 2.5-1: Proposed Project Pole Summary

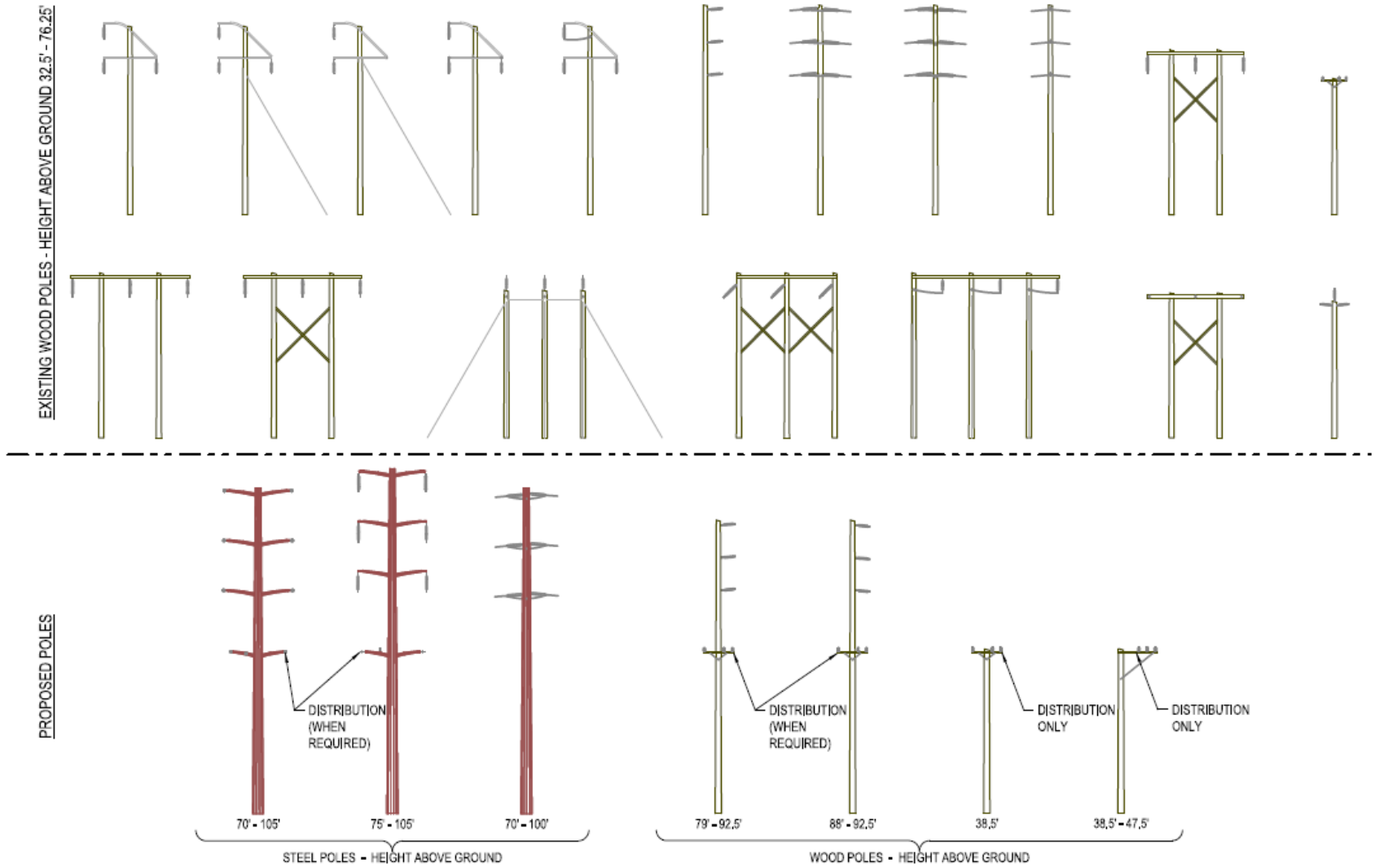
Action/Project Component	TSP[1]	Wood[1]	Stub[1]	Wood Distribution[1]
Add				
Northern Alignment	72	0	0	0
Cox-Freedom Segment	3	24	5	11
Rob Roy Substation Connections	4	0	0	0
Total[2]	79–86	24–26	5–6	11–12
Remove				
Northern Alignment	0	61	0	0
Cox-Freedom Segment	0	25	0	2
Rob Roy Substation Connections	1	0	0	0
Total[2]	1	86–95	0	2
Retain				
Northern Alignment	0	0	0	0
Cox-Freedom Segment	0	8	0	11
Rob Roy Substation Connections	0	0	0	0
Total[2]	0	8–9	0	11–12
Top				
Northern Alignment	0	10	0	0
Cox-Freedom Segment	0	0	0	0
Rob Roy Substation Connections	0	0	0	0
Total[2]	0	10	0	0

Notes

[1] Pole numbers are approximate and may change after final engineering.

[2] Due to final engineering additional poles may be required. The maximum number of poles that could be added is presented in this table and analyzed in this IS.

Figure 2.5-1: Typical Pole Drawings



Source: PG&E 2012

the landowner or to accommodate specific site conditions. In locations where additional support for wood poles is required due to line tension or local terrain, stub poles and guy wires would be installed. Up to four guy wires may be installed per pole. Three wood poles near the intersection of Cox Road and Day Valley Road would be relocated at least 5 feet back from the road pavement. All TSPs would be set back at least 20 feet from the edge of road pavement.

New Rob Roy Substation Connections
One new TSP would be installed and two existing poles would be replaced with TSPs to facilitate connecting two existing power lines to the modified Rob Roy Substation. The new TSPs would be similar to those installed along the Northern Alignment.

Table 2.5-1 summarizes the proposed pole replacement that would occur for the entire project.

2.5.2 Conductor

Northern Alignment
Each TSP would be configured to carry six individual 954 thousand-circular-mil (kcmil)[3] (1.124-inch-diameter) all-aluminum conductor (AAC) "Magnolia" conductors (the "wire" or "line"). Three conductors would be installed on each side of the TSPs and would be arranged in a vertical configuration for raptor protection. The overhead conductor would be attached to the transmission poles using six non-reflective grey porcelain insulators installed on each TSP. The new conductors would be installed with a minimum vertical and horizontal separation of approximately 8 feet. In accordance with CPUC General Order 95, the lowest conductor would be installed at least 30 feet above the ground.

The project design reflects the guidelines in the following documents[4]:

- Mitigating Bird Collisions with Power Lines: The State of the Art in 1994–Avian Power Line Interaction Committee (APLIC), 1994
- Avian Protection Plan Guidelines–APLIC and U.S. Fish and Wildlife Service, April 2005
- Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006–APLIC, 2006

The 115-kV conductor separation at the TSPs along the Northern Alignment meets the APLIC recommendation of 71 inches horizontal spacing and 51 inches vertical separation (PG&E 2013).

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[3] A circular mil is a unit equal to the area of a circle whose diameter is 1 mil (0.001 inch); this terminology is used chiefly in specifying cross-sectional areas of round conductors. One kcmil is a thousand circular mils.

[4] No 115-kV insulators have been manufactured that meet the recommended 71-inch horizontal phase to ground clearance guideline. As a result, the proposed project would not conform to this suggested guideline.

Distribution phase jumper wires and dead-end insulators would be covered with bird-safe materials on two TSPs with dead-ended distribution underbuild on steel crossarms (PG&E 2013). Center phases at each wood pole with distribution on the Cox-Freedom segment would be covered per APLIC recommendations (PG&E 2013).

Cox-Freedom Segment

The Cox-Freedom Segment would also utilize three individual 954-thousand-circular-mil kcmil AAC "Magnolia" conductors. The existing distribution conductors that would be collocated on the new poles are generally 2-gauge copper or 715.5-kcmil aluminum with diameters of approximately 0.414 inches and 0.974 inches, respectively. The Cox-Freedom Segment conductors would be attached to the power poles using three non-reflective grey composite or porcelain insulators at each pole. The conductors would be separated by a minimum vertical distance of 8 feet. The lowest power line conductor would be installed at least 25 feet above the ground. In instances where distribution conductors are collocated on the power line poles, the distribution conductors would be installed approximately 8 feet below the lowest 115-kV conductor; a minimum ground clearance of 25 feet would be maintained for the distribution conductors in accordance with General Order 95.

Two distribution line segments along the Cox-Freedom Boulevard Segment would also be reconductored (Figures 2.4-11 through 2.4-13). The two segments are from Pole E-86 to Pole E-101 and from Pole E-112 to Pole C-89.

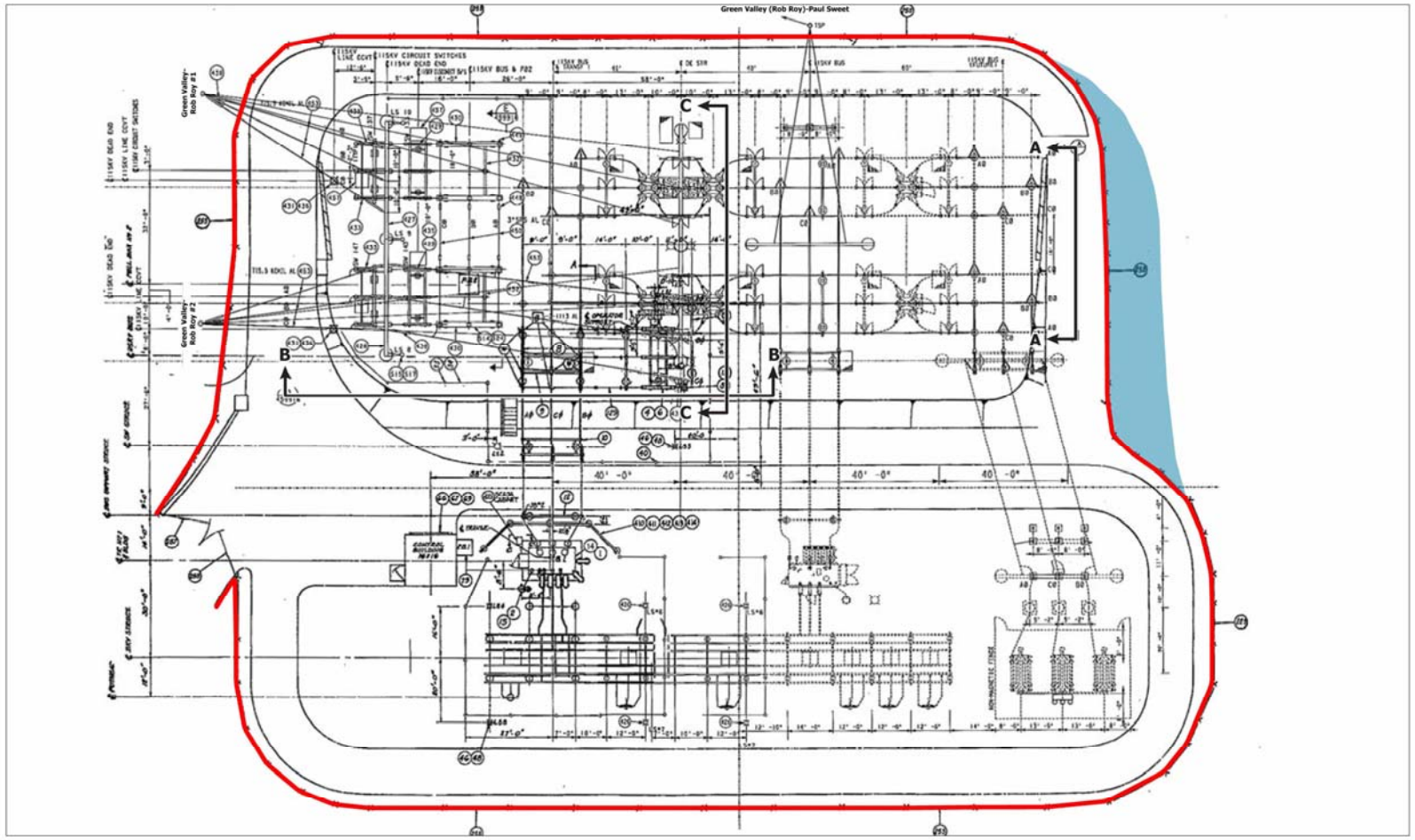
2.5.3 Rob Roy Substation Modifications

The proposed project includes modifications to Rob Roy Substation to accommodate the new power line. The modifications would begin with the conversion of the existing tap line bus configuration to a four-breaker ring bus arrangement using new steel structures. Modifications would also include the installation of the following:

- A new interior access road
- Four new 115-kV circuit breakers
- Twelve new 115-kV air break switches
- Nine new 115-kV coupling capacitor-type voltage transformers
- Two new approximately 35-foot-tall dead-end take-off structures
- An approximately 30-foot by 16-foot control enclosure

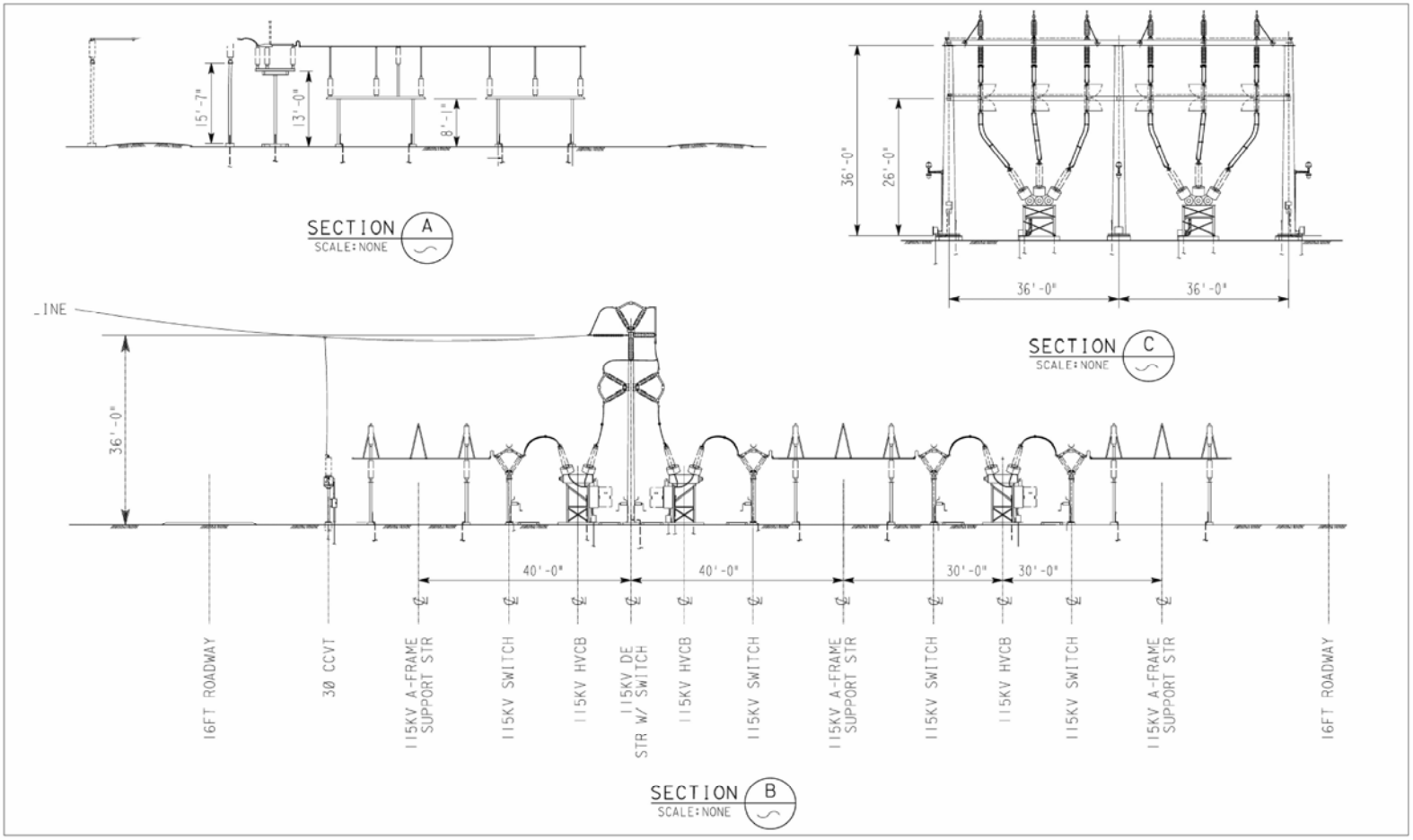
PG&E would expand the existing north and east fence lines by approximately 50 feet to accommodate the modifications to the substation. The existing network of access roads in the substation area would be expanded to surround the new components. The substation's proposed layout is depicted in Figures 2.5-2 and 2.5-3.

Figure 2.5-2: Rob Roy Substation Proposed Layout Including Parcel Boundary



Source: PG&E 2012

Figure 2.5-3: Rob Roy Substation Proposed Profile



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

Feet
0 10 20 30 40

PANORAMA ENVIRONMENTAL, INC.

Source: PG&E 2012

2.6 CONSTRUCTION

2.6.1 Vegetation Clearing, Grading, and Erosion Control

Vegetation Removal

Up to 46 acres of existing vegetation may need to be cleared or mowed along existing unpaved access routes, overland routes, and staging/landing zones and work areas (see Tables 2.6-1 and 2.6-2). Mowers, excavators, front-end loaders, and bulldozers would be used to clear these sites. During clearing activities, vegetation would be mowed or grubbed, leaving root systems intact wherever possible to encourage resprouting and to minimize erosion. Brush and shrubs cleared during construction would be disposed of at an approved landfill.[5]

Tree Removal

Up to 165 trees would need to be removed along the project alignment. Approximately 61 percent of those trees would be removed along the Cox-Freedom Alignment, while 39 percent along the Northern Alignment. The types of trees to be removed include cedar, Douglas fir, elm, eucalyptus, live oak, maple, Monterey pine, pine, redwood, stone pine, sycamore, and willow. Approximately half of the trees are non-native and half are native trees. The trees to be removed have height ranges from 20 to 100 feet and range from 5 to 85 inches in diameter at breast height (dbh). Three oak trees would be removed at the Rob Roy Substation.

Chainsaws, boom/bucket trucks, hand tools and chippers would be used as part of the tree removal process. Removed trees would most likely be mulched in place, except where prohibited. Trees may also be cut into logs and provided to residents, if requested, or hauled off site. Figures 2.6-1 and 2.6-2 show the anticipated tree trimming and removal locations.

Grading

Grading may be required along unpaved access roads, at pole work sites, and pull sites. Typical construction equipment required for grading includes graders, compactors, and haul trucks. Up to 46 acres of grading is anticipated (Tables 2.6-1 and 2.6-2).

PG&E would coordinate with landowners to secure access and accommodate livestock, as well as repair any roads or fences that may be damaged during work activities.

Erosion and Sediment Control

PG&E would be required to obtain coverage under the California State Water Resources Control Board (SWRCB) General Permit for Storm Water Discharges Associated with Construction Activity Order No. 2009-0009-DWQ (General Permit). In order to obtain coverage under the permit, PG&E would develop and submit Permit Registration Documents, including

[5] Buena Vista Landfill, located at 1231 Buena Vista Drive in Watsonville, has been identified as a potential disposal facility for brush and other cleared vegetation.

Table 2.6-1: Access Roads

Type of Road	Proposed Project Component	Improvement	Approximate Width (feet)	Approximate length (feet)	Total Approximate Area (acres)	Total Vegetation Clearing (acres)
Existing Paved	Northern Alignment	No improvement	10	8,150	1.9	0.0
	Cox-Freedom Segment		N/A	N/A	0.0	0.0
	Rob-Roy Substation Modification		20	513	0.2	0.0
Existing Unpaved	Northern Alignment	No improvement	20	19,750	9.1	0.0
	Cox-Freedom Segment		N/A	300	N/A	0.0
	Rob-Roy Substation Modification		20	N/A	0.1	0.0
Improved Unpaved	Northern Alignment	Grading and vegetation removal as necessary	12	1,150	0.3	0.3
	Cox-Freedom Segment		0	0	0.0	0.0
	Rob-Roy Substation Modification		0	0	0.0	0.0
Overland Route	Northern Alignment	Vegetation removal as necessary for fire prevention and wetland fill in 2 areas	12	10,670	2.8	2.8
	Cox-Freedom Segment		12	25	0.01	0.01
	Rob-Roy Substation Modification		12	500	0.12	0.12
				Total Range[1]	**14.53–16.0**	**2.93–3.22**

Note

[1] Due to final engineering additional poles may be required. The maximum acreages for each feature is presented in this table and analyzed in this IS.

Table 2.6-2: Temporary Work Areas

Proposed Project Component	Workspace Description	Quantity	Required Improvements	Total Approximate Area (acres)
Northern Alignment	Pole Work Areas	80	Vegetation removal and minor grading may be required	15.0
	Crossing Structures	18	Vegetation removal may be required	0.7
	Pull Sites	5	Vegetation removal and minor grading may be required	6.35
	Staging Area/Landing Zones	4	Mowing of vegetation	11.02
Cox-Freedom Segment	Pole Work Areas	49	Vegetation removal and minor grading may be required	0.6
	Pull Sites	4	None; would be located on existing roads	0.2
Rob Roy Substation Modification	Substation Work Areas	1	Vegetation removal may be required	0.3
Rob Roy Substation Connections	Pole Work Areas	5	Vegetation removal and minor grading may be required	0.61
All	Contractor Staging/Storage Yards	3	Mowing of vegetation	7.05
			Total Range[1]	**42–46**

Note:

1 Due to final engineering additional poles may be required. The maximum acreages are presented in this table and analyzed in this IS.

2 Note that the four pull and tension sites along the Cox-Freedom segment could be situated anywhere along the roadway, but would be entirely within the paved and disturbed roadway.

Source: PG&E 2012

a Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), risk assessment, site map, certification, and annual fee, to the SWRCB prior to initiating construction activities.

Appropriate best management practices (BMPs) would be developed in conjunction with the SWPPP for each activity that has the potential to degrade surrounding water quality through erosion, sediment run-off, and other pollutants. These BMPs would then be implemented and monitored throughout the project by a Qualified SWPPP Practitioner.

Figure 2.6-1: Potential Tree Removal and Trimming Locations, Map 1

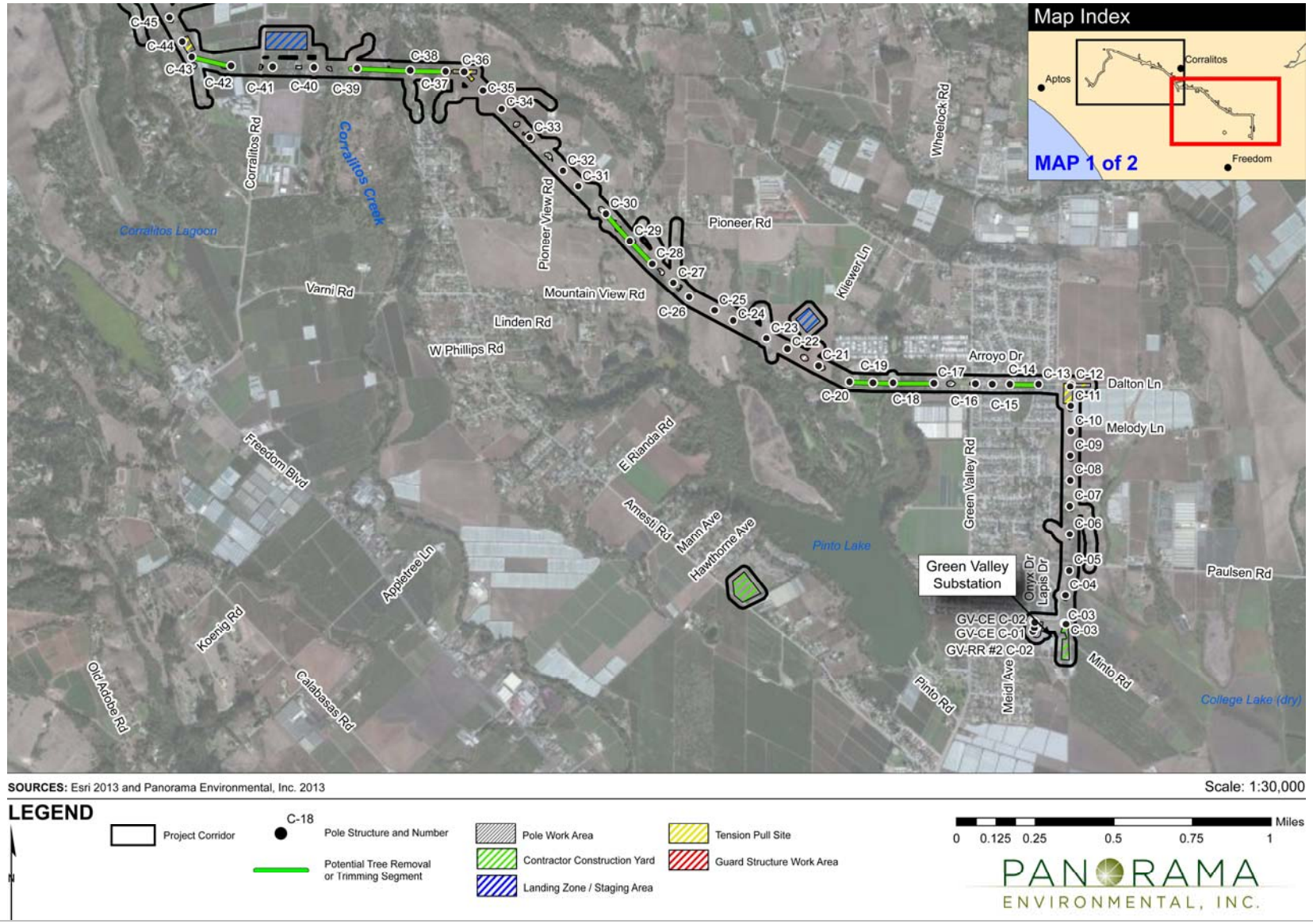
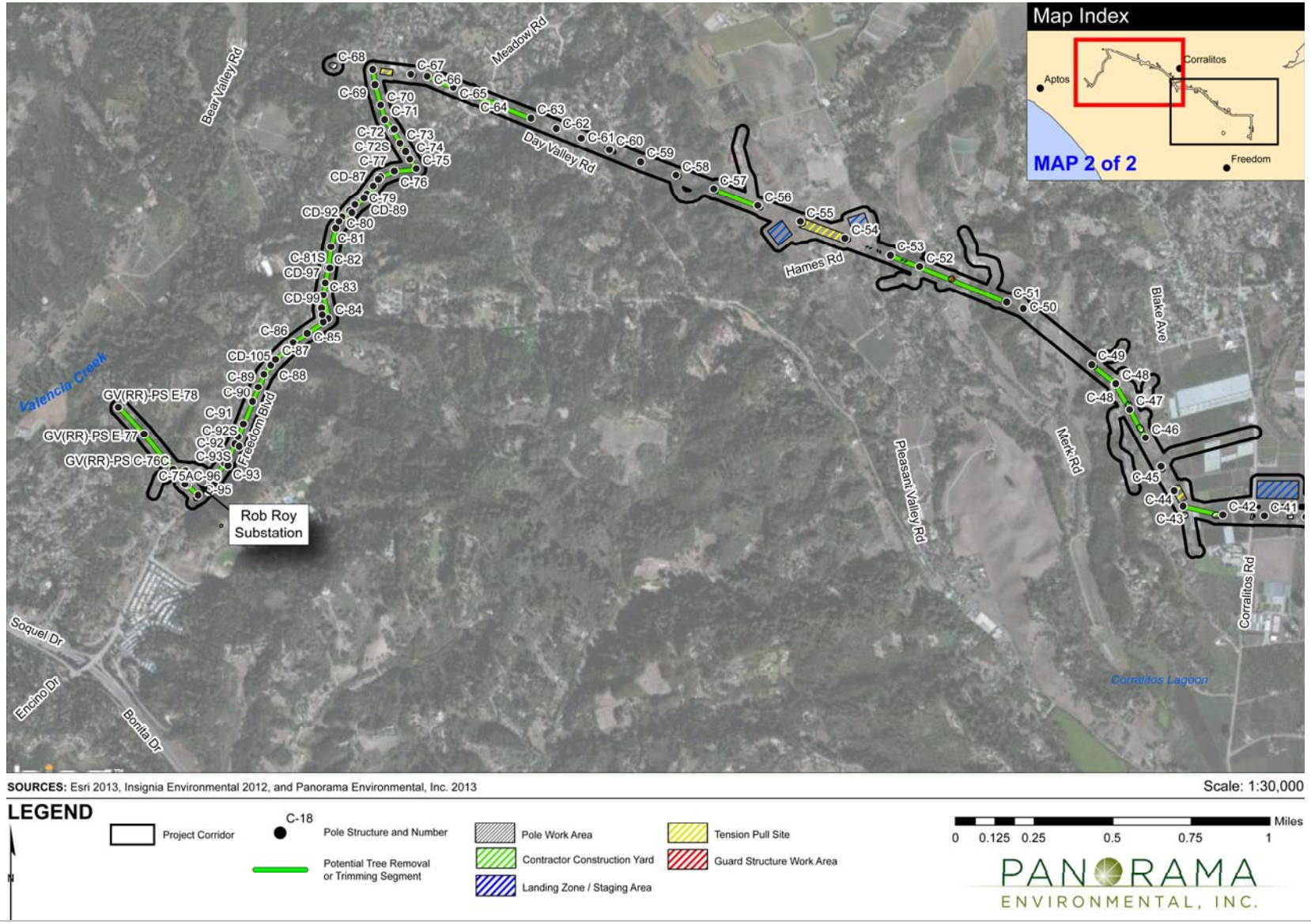


Figure 2.6-2: Potential Tree Removal and Trimming Locations, Map 2



2.6.2 Project Access

Access Roads

Work areas for construction would be accessed through a combination of existing paved, existing unpaved, improved unpaved, and overland routes. The approximate acreage of each type of access associated with each proposed project component is provided in Table 2.6-1. No new permanent access roads would be constructed for the proposed project. Access roads are identified on Figures 2.4-1 through 2.4-15; however, access routes could be used anywhere within the project corridor, as previously defined.

Existing paved and existing unpaved roads would be used to access proposed project components along the Northern Alignment, Cox-Freedom Segment, and Rob Roy Substation. Overland routes would typically be approximately 12 feet wide to allow safe access by construction equipment. Some vegetation may need to be cleared along overland routes as previously discussed. Overland routes may be wider in some areas based on field conditions.

PG&E's access to the Northern Alignment work area using Kliewer Lane would require that PG&E replace a plastic culvert with a heavy duty steel culvert. The existing culvert would be insufficient to support the weight of equipment and materials that would be transported to the pole work areas. The estimated fill area would be approximately 180 square feet. This area is shown on Figure 2.4-3. PG&E would also need to lay aggregate in a seasonal wetland off of Pioneer Lane for trucks to access a pole. A total of 40 square feet would be filled. This area is shown on Figure 2.4-4.

Pole GV-RR#1 E-75, an existing pole located adjacent to Aptos High School, is located outside of the project corridor. This pole would be accessed on foot, and no temporary road would be created.

Construction Traffic and Circulation

Construction would require temporary lane closures along various public and private roads within the project corridor. Temporary lane closures would be coordinated with the County of Santa Cruz and/or City of Watsonville.

Helicopter Access

Helicopters with an approximate maximum payload capacity of 4,000 pounds would be used to assist with the installation of new poles in areas along the Northern Alignment, where limited access or local terrain conditions prohibit the work from being conducted by ground-based crews and equipment. Helicopters would be used to install poles C-44 through C-52, C-56, and C-57. Helicopters may also be used during the conductor installation and removal activities. Typical payloads would include, but not be limited to, wood poles, TSP segments, sock lines, power line hardware, crew members, and equipment. Hours of helicopter operation would be limited to those allowed by local regulations and ordinances, and would occur during the proposed construction hours as described further in Section 2.6.7: Construction Schedule. PG&E's BMPs would be implemented at the landing zones in order to reduce potential impacts

to air quality, hazards and hazardous materials, and noise. The measures are identified in Section 2.9: Applicant Proposed Measures.

Helicopter flight paths are defined in close temporal proximity to the actual flights and are subject to variance due to weather conditions, air traffic, and other factors. The helicopter contractor would be responsible for notifying the Federal Aviation Administration (FAA) of proposed flight paths 24 hours in advance of helicopter operations, and for complying with all FAA regulations. It is not anticipated that helicopters would carry loads over occupied structures. If a helicopter route is identified to cross over "congested areas" as described in Federal Aviation Regulations (FAR), Part 133, the contractor would submit a formal written Lift Plan to the FAA at least 72 hours prior to helicopter operations.

2.6.3 Temporary Work Areas

Temporary work areas include staging areas, storage yards, helicopter landing zones, crossing structure work areas, pole work areas, pull sites, and the substation work area. Table 2.6-2 identifies each of the work areas and the approximate acreage of each.

Staging Areas/Helicopter Landing Zones/Storage Yards

Approximately three staging areas/landing zones would be used during construction. Staging areas/landing zones are depicted on Figure 2.4-1 through 2.4-15. Table 2.6-3 lists the currently anticipated staging areas, landing zones, and storage yards. Additional staging area options have been designated in the event that conditions at the time of construction change.

Staging areas and storage yards would be used for the following purposes:

- Equipment and construction vehicle storage, refueling and repair
- Construction material storage
- Pole assembly/disassembly
- Refuse collection and storage
- Construction personnel parking/reporting
- Construction trailer staging

Construction trailers would be mobilized in these areas for use during construction. Temporary power would be brought to the trailers by tapping into distribution lines located adjacent to the staging areas. This temporary power would be used for the operation of the construction trailers and lighting. These sites may also be used to stage and refuel the helicopters during construction activities.

Helicopter landing zones would be located in relatively flat areas that allow enough space for helicopters to safely land and take off. These sites may also be used for equipment and materials storage and for assembling structures. The helicopter would transport structure materials to and from the structure sites along the project corridor from the helicopter landing zones.

A layer of gravel may be spread over the staging areas and storage yards to control mud or other track-out, depending upon substrate conditions. For security, approximately 6-foot-tall

Table 2.6-3: Proposed Staging Areas, Landing Zones, and Contractor Storage Yards	
Area	**Approximate Size (acres)**
Sakata Road Staging Area	2.54
Kliewer Lane Staging Area/Landing Zone	2.07
Corralitos Road Staging Area/Landing Zone	4.82
Hames Road Contractor Storage Yard/Landing Zone (2)	4.10
Green Valley Contractor Storage Yard	1.31
Amesti Road Contractor Storage Yard	3.20
Total Range	**18.0–19.8**

Note

[1] Due to final engineering additional poles may be required. The maximum acreages are presented in this table and analyzed in this IS.

chain-link fences, with approximately 1 foot of barbed wire on top, may be installed around the perimeter of the staging areas and storage yards. Locking gates would also be installed to control access. During conductor stringing operations, 24-hour security guards may be used to enhance security at the site. Temporary night time security lighting may be installed, if needed.

Three contractor storage yards are proposed, as identified in Table 2.6-2. They would be used for storage and for worker and project vehicle parking. These flat areas are easily accessible for picking up and dropping off construction materials. Construction materials may also be stored at existing PG&E facilities. PG&E personnel may report to existing PG&E offices or yards during construction.

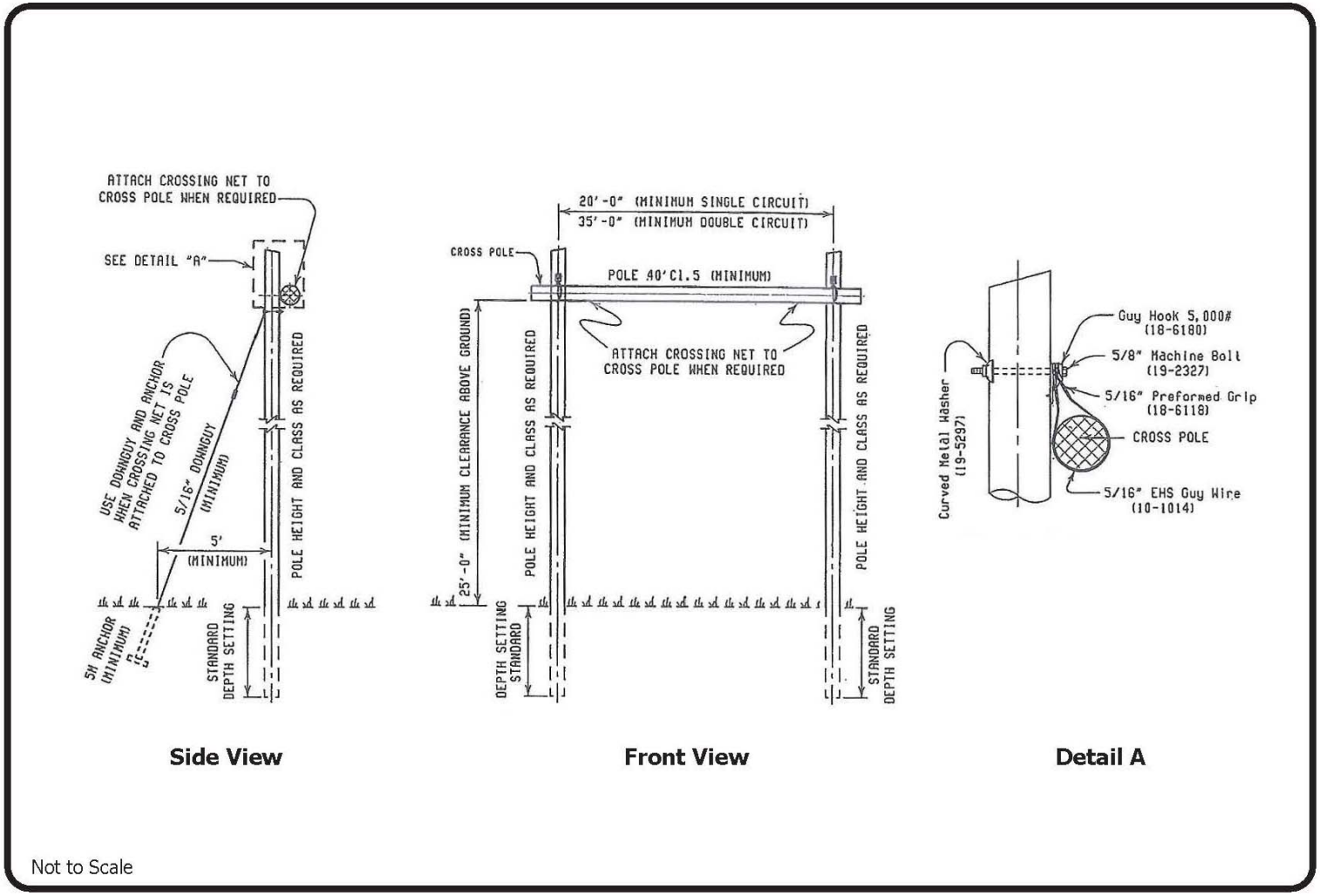
Crossing Structure Work Areas

Prior to removing the existing conductors along the Northern Alignment, within the Cox-Freedom Segment ROW, and at the Rob Roy Substation, temporary crossing structures would be installed or mobilized at crossings of energized electric lines, communication facilities, and/or major roadways to prevent the conductors from sagging onto other lines or roads during removal or installation. Crossing structures would typically consist of either vertical wood poles with cross arms or staged construction equipment (Figure 2.6-3). PG&E would establish work areas measuring an average of 75 feet by 70 feet at each proposed crossing in order to accommodate the installation of a crossing structure.

Pole Work Areas

Pole work areas are required to remove existing poles and to install the new poles. Work areas range in size from circular areas 10 feet in diameter to rectangular areas 140 feet long and 100 feet wide. The pole work areas are used to stage construction materials and equipment. Up to 184 pole work areas may be required as shown in Figures 2.4-1 through 2.4-15. All work areas would be within the project corridor.

Figure 2.6-3: Typical Crossing Structure



Source: PG&E 2012

Pull Sites

Approximately nine pull sites would be used to install and remove conductors during construction. The average size of a pull site is 1.27 acres. The pull sites are shown in Figures 2.4-1 through 2.4-14. Pull sites would be utilized by PG&E to stage conductor-pulling trucks and conductor reel trucks. All pull sites located outside of paved areas may require vegetation removal and, depending on the local terrain, some minor grading to ensure a flat and safe work environment.

PG&E would establish approximately five 200- to 800-foot-long by 100- to 300-foot-wide pull sites on the Northern Alignment. These sites would be generally in line with the existing power line and distribution line alignments to facilitate installation of the new overhead conductors onto the poles along the Northern Alignment. These five pull sites would require a total of approximately 6.3 acres of temporary disturbance. On average, the pull sites would be located approximately 1.7 miles apart.

Approximately four pull sites would be located along the Cox-Freedom Segment. Three of these pull sites would be located within public paved roads. One additional pull site, measuring approximately 115 feet by 70 feet, would be located in the pole work area adjacent to and directly west of Cox Road near the southern corner of Rob Roy Substation. These four pull sites would be located approximately 0.6 miles apart.

Substation Work Area

Substation work at Rob Roy Substation would require the existing north and east fence lines to be relocated approximately 50 feet to allow for the additional components and a new permanent interior access road to be installed. An approximately 20-foot-wide work area would also be established around the perimeter of the extended fence line to accommodate construction activities. These additional areas would be located within PG&E's existing parcel and would accommodate substation construction equipment and the interior access road.

2.6.4 Structure Install and Removal

Crossing Structure Installation

Crossing structures would be installed to protect existing roadways and other facilities from sagging conductors during construction. PG&E would auger an approximately 2-foot-diameter, 8-foot-deep hole within each crossing structure work area to facilitate the crossing structure installation. The temporary wood poles would then be placed in the excavations using a small crane or loader and secured by backfilling and compacting the excavated material into the remaining void. Equipment, such as line trucks, loaders, backhoes, or cranes, may be temporarily positioned to shield the crossing from potentially sagging conductors in areas where crossing protection may be short in duration or of low risk. A typical crossing structure is shown in Figure 2.6-3.

Pole Installation

Grounding the Line and Obtaining Clearance

Prior to installing either the TSPs or wood poles, an approved clearance from PG&E System Operations would be obtained and the line would be grounded/cleared of electrical energy. To start this process, PG&E System Operations would de-energize the line through remote-controlled operation of the substations or opening distribution line switches. Grounding clamps would be attached to the conductors on either side of the pole work area once the line is cleared and determined to be non-energized. The grounding clamps are attached to insulated rods with conductor pigtails that would be attached to copper ground rods driven into the ground. The line would then be tested again to be sure it is not energized. If it is determined to be non-energized, the installation of the poles and transfer of conductor can proceed. The grounding scheme would be removed at the work area and the line would be reenergized at the end of the approved clearance period or the daily duration of construction.

Work Area Preparation

Pole installation would begin with vegetation clearing at the pole work area, as described in Section 2.6.1: Vegetation Clearing, Grading, and Erosion Control. If necessary, minor grading may be conducted in order to develop a flat, stable area.

Foundation Construction

Concrete foundations would be constructed prior to erecting the pole in order to install TSPs. Foundation construction would commence with the excavation of an approximately 3- to 7-foot-diameter, 15- to 33-foot-deep hole using large augers and drill rigs. A reinforcing steel rebar cage would then be delivered to the work area. Due to design considerations and available access, the cage may be delivered in more than one piece. The complete cage would then be lowered into the excavation and an approximately 2-foot-tall surface form would be built. Concrete would be poured to fill the excavation and encase the rebar cage once the rebar cage is in place and the form is established. The completed foundation is then left to cure for between 7 and 14 days.

Tubular Steel Pole Installation

The TSP or pole segments, cross arms, insulators, and hardware would be delivered to the pole work area. The cross arms would be attached, the pole would be placed onto the cured concrete foundations using cranes, and the pole would be secured using the appropriate hardware. If the pole is delivered in multiple segments due to access restrictions or other engineering considerations, the segments would be placed in order on the foundation and secured using hardware. Poles may be delivered and assembled on their foundations using a helicopter in areas of difficult terrain. Once the pole is installed, additional hardware would be added to the cross arms using a bucket truck. If applicable, the existing conductor would then be attached to the new TSP hardware, and the line would be re-energized. TSPs would be installed at least 20 feet from the edge of the roadway for safety purposes.

Wood Pole Installation

Wood poles would be embedded directly in the ground without the use of a separate foundation. Work would begin by excavating an approximately 3- to 4-foot-diameter and approximately 8- to 11-foot-deep hole. As described previously, direct-bury poles would be embedded at an approximate distance of 10 percent of their total installed height plus 2 feet.[6] The poles, insulators, and hardware would be delivered to the pole work area following the excavation process, and would be assembled. The poles would then be placed in the excavation using line trucks or cranes, the remaining void would be backfilled, and the surrounding area would be compacted. Guy wires would be installed where needed along the wood pole section. Up to four guy wires may be installed per pole. The final number, exact location, and orientation of guy wires would be dependent on site-specific conditions such as soil stability, wind exposure, and the depth the pole extends below grade.

Once the pole is embedded and the surrounding area compacted (and guy wires installed, if needed), additional hardware would be added to the cross arms using a bucket truck. The existing conductor would then be attached to the new wood pole hardware, if applicable, and the line would be re-energized.

Conductor Installation

The new 115-kV circuit conductor stringing between the Green Valley Substation and the Rob Roy Substation would begin with the installation of insulators and stringing sheaves during TSP installation. Sheaves are rollers that would be temporarily attached to the lower end of the insulators to allow the conductor to be pulled along the line. A rope would then be pulled through the rollers from structure to structure. This conductor pulling may be accomplished through the use of a helicopter in instances where terrain is difficult or through the use of a bucket truck or aerial man-lift. Once the rope is in place, it would be attached to a steel cable and pulled back through the sheaves. The 115-kV conductor would then be attached to the steel cable and pulled back through the sheaves and into place. This would be done using conventional tractor-trailer pulling equipment located within one of the substations or within designated pull sites located along the alignments. The pulling through each structure would be done under a controlled tension to keep the conductor elevated and away from obstacles.

The sag between the structures would be adjusted to a pre-calculated level after the 115-kV conductor has been pulled into place. The lowest 115-kV conductor would be installed with a minimum ground clearance of approximately 30 feet. The conductor would then be attached to the end of each insulator, the sheaves would be removed, and the vibration dampers and other hardware accessories would be installed. The existing 12-kV distribution line would be transferred from the existing poles to the new collocated poles, where applicable. The installation and transfer of the conductors would require temporary partial system outages.

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[6] Stub poles would be installed in a similar fashion as wood power poles.

This process would be repeated again to reconductor the existing Green Valley-Camp Evers 115-kV line between the Green Valley Substation and an existing pole near the intersection of Cox Road and Leslie Lane.

Distribution Switching Activities and Reconductoring of Distribution Line Segments
Any distribution lines that cross the power line or are collocated on the line would be temporarily taken out of service during reconductoring along the specific relevant line segments (taking clearances). PG&E would use daily clearances, planned in advance with PG&E's System Operations group, for the relocation of the distribution lines. Distribution clearances may occur anywhere along the power line and the exact location of the clearances is determined the morning of the clearance. The process of taking clearances may require a worker to physically climb the poles or access via a bucket truck to turn switches on or off. Clearances may therefore be outside of the project corridor.

Two distribution line segments along the Cox-Freedom Boulevard Segment would also be reconductored. The work would be conducted from the edge of the road. The two segments are (Figures 2.4-11, 2.4-12, and 2.4-13):

- From Pole E-86 to Pole E-101
- From Pole E-112 to Pole C-89

Pole Removal
Following the transfer of the existing Green Valley-Camp Evers 115-kV circuit conductors to the new TSPs, and transfer of the existing distribution line to the new Cox-Freedom Segment poles, crews would remove the existing distribution and transmission poles and hardware using cranes, aerial man lifts, and/or helicopters. The old poles would be cut off at ground level and any guy wires removed and transported off site. The bases of the poles would then be removed, the voids would be backfilled and compacted with native soil from new pole excavations, and the backfilled areas would be allowed to revegetate naturally. Removed poles would be transported to a PG&E service yard for temporary storage until the poles are reused or disposed of at a permitted landfill site, as appropriate.[7]

Pole Topping
Approximately 12 existing poles along the Northern Alignment that currently have distribution underbuilt would be retained following construction. PG&E anticipates that eight of these poles would be topped (i.e., the top would be cut off with a chainsaw) approximately 1 foot above the horizontally configured distribution underbuild. The distribution underbuild at the remaining poles would be reframed as a vertical configuration and the existing pole would be topped approximately 1 foot above the highest distribution conductor.

[7] The Monterey County Regional Waste Management District Landfill, located at 14201 Del Monte Boulevard in Marina, has been identified as a potential disposal facility for old wood power line poles.

Rob Roy Substation Modification

Modification of Rob Roy Substation would be required to accommodate the additional 115-kV circuit. Backhoes and augers would be used to excavate the new footing for the additional substation components. PG&E would construct necessary forms and pour additional concrete footings following excavation work. All equipment would be anchored into final position once all footings have cured, and wiring, controls, and protective devices would be installed. All new components would be delivered to the site using a flatbed truck and positioned using a small crane.

2.6.5 Cleanup and Post-Construction Restoration

Surplus materials, equipment, and construction debris would be removed at the completion of construction activities. All man-made construction debris would be removed and recycled or disposed of at permitted landfill sites, as appropriate. Cleared vegetation would either be chipped and stored on the ROW for later use during reclamation, or disposed of off-site, depending on landowner and agency agreements.

Northern Alignment, Cox-Freedom Segment, and Rob Roy Substation Connections

All areas that are temporarily disturbed around each pole, as well as areas used for conductor stringing and staging, would be restored to preconstruction conditions following construction. This restoration would include returning areas to their original contours, as well as reseeding in accordance with prearranged landowner agreements, where applicable. An approximately 30-foot by 15-foot work space area surrounding all TSPs and wood poles for the 115-kV power line poles would be maintained clear of vegetation and other obstructions for inspection and maintenance purposes. Improved unpaved access roads and overland routes would be returned to their natural conditions.

Rob Roy Substation Modifications

All construction waste would be disposed of in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste disposal, and would be transported to an authorized landfill or disposal facility. Because all work would occur within existing or modified fence lines, no landscaping work is proposed around the substation.

2.6.6 Equipment and Transportation

The equipment that would be used during project construction, as well as a summary of deliveries and pickups for each piece of equipment, is provided in Table 2.6-4. Green Valley Road, Airport Boulevard, and Freedom Boulevard would be the primary routes used to access the project corridor during construction. Freedom Boulevard, Cox Road, Dalton Lane, Day Valley Road, and McDonald Road would be used to access work sites for poles adjacent to those routes.

2.6.7 Construction Schedule

PG&E anticipates that construction of the proposed project would take up to 15 to 18 months. 95 percent engineering design was completed in June 2013. Site development and preparation for all proposed project components are preliminarily scheduled to begin in July 2015, after which

Table 2.6-4: Construction Equipment Summary

Activity	Quantity	Equipment
Site Access and Road Drainage	1	1-Ton foreman pickup
	2	Backhoe/loader
	1	Brush hog
	2	Dump/haul truck
	1	Vibrating roller
	2	Water truck
Construction Yard/Work Area/Laydown	1	Tractor-harrow disc
	1	6-person crew truck
Foundation Installation (Northern Alignment and Cox-Freedom Segment)	2	1-Ton foreman pickup
	4	6-person crew truck
	3	Backhoe/bobcat
	6	Concrete truck
	8	Dump/haul truck
	1	Helicopter
	4	Small mobile crane/boom truck/forklift
	3	Tracked drill rig with augers
	4	Wheel roller
TSP Installation (Northern Alignment and Cox-Freedom Segment)	8	50- to 70-Ton crane
	8	Aerial lift truck
	8	Air compressor
	1	Helicopter
	8	Portable generator
	4	Semi with 40-foot trailer
Direct Bury Pole Installation/Pole Removal (Cox-Freedom Segment)	1	1-Ton foreman pickup
	1	20-Ton derrick digger
	3	25-Ton crane/bucket truck
	2	2-Ton flatbed truck
	2	6-person crew truck
	1	Tracked drill rig with augers
	1	Concrete/industrial saw

Table 2.6-4 (*Continued*): Construction Equipment Summary

Activity	Quantity	Equipment
	4	Aerial lift truck
	4	Air compressor
	4	Portable generator
Pole Removal (Northern Alignment)	2	1-Ton foreman pickup
	4	2-Ton flatbed truck
	3	50 to 70-Ton crane
	4	6-Man crew truck
	6	Aerial lift truck
	6	Air compressor
	3	Concrete/industrial saw
	1	Helicopter
	6	Portable generator
Pulling and Stringing (Northern Alignment and Cox-Freedom Segment)	1	1,500-Gallon fuel truck
	2	1-Ton foreman pickup
	1	2-Ton equipment truck
	6	6-Man crew truck
	9	Aerial lift truck
	3	Air compressor
	2	Dual bull wheel tensioner/tensioner
	2	Helicopter
	2	Hydraulic press
	3	Portable generator
	4	Rigging/line truck
	2	Three-reel puller
	2	Wire reel trailer
	3	Pumps
Rob Roy Substation Construction (Entire Duration)	2	1-Ton foreman pickup
	1	6-Man crew truck
	2	Pickup
	1	Vendor pickup

Table 2.6-4 (*Continued*): Construction Equipment Summary		
Activity	**Quantity**	**Equipment**
Fence Removal and Construction (Rob Roy Substation)	1	Backhoe
	1	1-Ton material truck
	1	1-Yard portable mixer
	1	Truck-mounted hole auger
Site Mobilization	5	Flatbed truck
Rough Grading (Rob Roy Substation)	1	Bull Dozer
	1	Dump/haul truck
	1	Paddle scraper
	1	Skid steer/bobcat
	1	Water truck
Foundation/Duct Bank Installation (Rob Roy Substation)	1	Backhoe
	3	Concrete truck
	1	Trencher
Compaction (Rob Roy Substation)	1	Roller Compactor
	2	Wacker tamper
	1	Water truck
Final Grading and Paving (Rob Roy Substation)	1	Paving machine
	1	Skip loader tractor
	1	Transfer truck
Equipment Installation (Rob Roy Substation)	1	25-Ton Crane/Bucket Truck
	3	Aerial lift truck
	1	Forklift
	3	Semi with 40-foot trailer
Testing and Commissioning (Rob Roy Substation)	1	Bucket truck
Restoration	2	Pickup
Environmental Inspection	1	Pickup

construction of each of the components would occur concurrently. Commissioning and startup of the new circuit is anticipated to occur in 2016 or 2017.

Construction would typically occur 6 days per week (Monday through Saturday) throughout the duration of construction. Daily work hours would generally be 10 hours per day with construction typically occurring between 7:00 AM and 5:30 PM. Occasionally, work would occur during the evening hours or on Sundays. Such activities would include, but are not limited to, monitoring the substation foundation curing process, and testing and commissioning the new substation components.

Construction work in Pinto Lake Park (Figure 2.4-2 and 2.4-3) would not occur on weekends, unless permission is obtained by the County, and activities would be coordinated with the County two to three weeks in advance.

2.6.8 Construction Workforce

Different phases of the construction process require varying numbers of construction personnel. Construction of the Northern Alignment would be conducted by two six- to eight-crewmember teams. The Cox-Freedom Segment would be constructed by one or two eight-crewmember teams. Rob Roy Substation modifications would be conducted by approximately nine personnel. The total number of construction personnel and vendors visiting the site would range between approximately 12 and 75 per day, including construction monitors.

2.7 OPERATION AND MAINTENANCE

This section describes the operation and maintenance (O&M) activities that would be conducted for each proposed project component once the project has been constructed and is in service.

2.7.1 Power Lines

Inspection, maintenance, and repair of the new 115-kV power lines would continue to be performed as it has been for the existing lines in the project corridor. O&M activities for both existing and proposed electric lines would involve both routine preventative maintenance and emergency procedures to maintain service continuity. Aerial and ground inspections of project facilities would continue to be performed. At a minimum of once per year, the TSPs and power lines would be inspected for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Approximately 30-foot by 15-foot work spaces around all TSPs and wood poles would be maintained for the 115-kV power line poles. These areas would be kept clear of shrubs and other obstructions for inspection and maintenance purposes. Herbicides would be applied in the work spaces around all TSPs and wood poles, as needed, to control the growth of vegetation.

2.7.2 Rob Roy Substation

The Rob Roy Substation would continue to be unmanned during operation, and substation monitoring and control functions would continue to be performed remotely. Unauthorized entry into the substation would be prevented by the existing and expanded fencing around the facility and locked gates. No new personnel would be required for operation and maintenance of the substation. Routine inspections would continue to occur approximately 12 times per year

by two or three PG&E employees to ensure that the substation is in proper functioning condition.

2.8 REQUIRED APPROVALS

The CPUC is the lead state agency for the project under CEQA because a PTC is required in accordance with the CPUC's General Order No. 131-D Section III.B (GO 131-D). GO-131-D includes the permitting requirements for the construction of transmission and power line facilities. In addition to the PTC, PG&E would obtain all necessary permits for the project from federal, state, and local agencies per requirements under GO 131-D. Note that only ministerial permits are required from local jurisdictions. Table 2.8-1 provides the potential permits and approvals that may be required for project construction.

Table 2.8-1: Potential Permits and Approvals

Permit/Authorization	Agency	Requirement
Incidental Take Permit	USFWS	Required if incidental take of Santa Cruz long-toed salamander could occur
Permit to Construct	CPUC	Construction of a new 115-kV circuit
National Pollutant Discharge Elimination System (NPDES) Construction General Permit	State Water Resources Control Board	Disturbance of more than 1 acre of land during construction
Encroachment Permit	Santa Cruz County	Work within County roads ROW and property
Building Permit	Santa Cruz County	Attachment of control enclosure to foundation at Rob Roy Substation
Grading Permit	Santa Cruz County	Grading at Rob Roy Substation
Significant Tree Removal Permit	Santa Cruz County	Removal of trees in an area considered "sensitive habitat"
Section 404 Permit (Dredge and Fill)	USACE	Required for discharge of fill material at wetland work areas.
Section 401 (Water Quality Certification/Waste Discharge Requirements)	Central Coast Regional Water Quality Control Board	Required for discharge of fill material at wetland work areas

2.9 APPLICANT PROPOSED MEASURES

PG&E proposes to implement measures to ensure that the proposed project would be implemented with minimal environmental impacts in a manner consistent with applicable rules

and regulations. PG&E proposes to implement these measures during the design, construction, and operation of the proposed project to avoid or minimize potential environmental impacts.

Applicant Proposed Measures (APMs) listed in Table 2.9-1 are considered part of the proposed project in the evaluation of environmental impacts (see Section 3: Environmental Setting and Environmental Impacts). CPUC approval would be based upon PG&E adhering to the proposed project as described in this document, including the project description and the APMs, as well as any adopted mitigation measures identified in the MND.

Table 2.9-1 details each APM by environmental issue area. Some APMs have been edited or deleted since their initial proposal in the PEA. APMs are presented as follows:

- Some APMs were modified to clarify language without substantive changes to the content. The originally proposed and final language of these APMs is presented in the table.
- Some APMs that were initially proposed were found to be unnecessary to reduce impacts and have been deleted.

Some APMs were superseded with mitigation measures, as presented in Section 3. The additional mitigation measures supersede the APMs presented in Table 2.9-1. PG&E has agreed to implement all of the additional recommended mitigation measures as part of the proposed project.

Table 2.9-1: Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
Aesthetics	
AES-01: Construction activities will be kept as clean and inconspicuous as practical.	**Deleted:** The APM was deleted because it is not needed to reduce effects to less than significant levels and it has no clear standards against which to measure success of implementation.
AES-02: Non-reflective 115 kV conductor and insulators will be installed along the Northern Alignment and Cox-Freedom Segment to minimize the reflectivity and general visibility of the line.	**AES-02:** Non-reflective 115 kV conductor (non-specular conductors) and insulators will be installed along the Northern Alignment and Cox-Freedom Segment to minimize the reflectivity and general visibility of the line.
AES-03: The new and replacement tubular steel poles that will be installed will be manufactured of self-weathering steel.	**AES-03:** New and replacement tubular steel poles to be installed will be manufactured steel that will come pre-weathered with a rust color.
AES-04: The new lighting at Rob Roy Substation will use non-glare or hooded fixtures, and will be directed to reduce spillover into areas outside the substation site and minimize the visibility of lighting from off-site locations.	**AES-04:** The new lighting at Rob Roy Substation will use non-glare or hooded fixtures, and will be directed to reduce spillover into areas outside the substation site and minimize the visibility of lighting from off-site locations.
AES-05: To reduce the potential visibility of new poles as seen from a limited number of residences within approximately 250 feet, where relatively unobstructed views of the project are seen and the new structures appear prominent, PG&E will consult with residential property owners regarding the potential purchase of trees and large shrubs for visual screening to be installed at key locations on residential properties, where feasible. The selected plant materials will be ecologically appropriate to the local landscape setting (in terms of water usage, horticultural and soil requirements, etc.) and will be consistent with PG&E and CPUC requirements for landscaping in proximity to power facilities.	**Deleted:** The APM was deleted because it is not needed to reduce effects to less than significant levels and implementation of the measure would not necessarily reduce impacts.
Air Quality and Greenhouse Gas Emissions	
AIR-01: All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with non-toxic soil stabilizers at least two times per day or as needed to control fugitive dust.	**AIR-01:** All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with non-toxic soil stabilizers at least two times per day or as needed to control fugitive dust.
AIR-02: Traffic speeds on unpaved roads and rights-of-way will be limited to 15 miles per hour.	**Deleted:** APM AIR-02 was deleted because it is duplicative of APM BIO-10, which has been retained.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
AIR-03: Vehicle idling time will be limited to a maximum of 5 minutes for vehicles and construction equipment, except where idling is required for the equipment to perform its task.	**Deleted:** The APM was deleted because it is not needed to reduce effects to less than significant levels and it has no clear standards against which to measure success of implementation.
AIR-04: If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site, to the extent feasible. The ability to develop an effective carpool program for the project will depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling will not adversely affect worker arrival time and the project's construction schedule.	**Deleted:** The APM was deleted because it is not needed to reduce effects to less than significant levels and implementation of the measure would not necessarily reduce impacts.
Biological Resources	
BIO-01: Confinement of Work Activites and Access to Designated Areas Only. All project vehicular movement will be restricted to existing access roads, temporary access roads constructed as a part of the project, designated overland routes, approved temporary work areas, and existing permanent work areas. All approved access roads, access routes, and work areas will be located in advance of construction to the extent possible, and will be marked in sensitive areas except when not feasible due to physical or safety constraints. Construction personnel and equipment will be confined to these delineated work areas, access roads, and access routes. Vehicle travel to each construction site will be limited to the minimum number of trips and vehicles necessary to perform work safely. If new access routes or work areas are needed in biologically sensitive areas, they will be surveyed first by a qualified biologist to ensure that no special-status species or sensitive habitat is present. Approval from a qualified biologist will be obtained prior to any travel off of approved routes or work areas in biologically sensitive areas.	**Deleted:** The APM was deleted because this measure is already included in the description of the project. New access routes are only allowed within the project corridor. Other measures address survey requirements in greater detail.
BIO-02: Minimization of Vegetation Clearing. Vegetation-clearing (i.e., tree removal, tree trimming, and understory vegetation removal) will be confined to the minimal amount necessary to safely facilitate work. Pre-construction surveys will be performed prior to vegetation-clearing activities, and as feasible, those activities will be planned to avoid sensitive periods for special-status species.	**Deleted:** This APM was deleted because other measures more thoroughly address vegetation clearing, special status species surveys, and habitat restoration.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
BIO-03: Site Restoration and Revegetation. The existing conditions of work areas and overland travel routes will be documented by a qualified biologist before construction begins, and these areas will be returned to pre-existing contours and conditions following construction. A Revegetation and Monitoring Plan will be developed; this plan will describe which vegetation restoration method (i.e., natural revegetation, re-seeding with native seed stock, or reseeding in compliance with the project's Stormwater Pollution Prevention Plan [SWPPP]) will be implemented in the project area. The Revegetation and Monitoring Plan will include additional measures for areas that support sensitive habitat (coastal scrub) and/or special-status plant populations, as discussed in APM BIO-04 and APM BIO-22. This plan will also include measures to control highly invasive weed species.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-2. Refer to Section 3: Environmental Setting and Impacts.
BIO-04: Avoidance and Minimization of Impacts to Special-Status Plant Populations. During the appropriate phenological periods, pre-construction rare plant surveys will be conducted in areas where either special-status plants were previously identified or have the potential of occurring within work areas. Agricultural fields and developed areas will not be surveyed due to the lack of suitable habitat for supporting rare plant species. Prior to construction, the boundaries of all special-status plant populations will be delineated with clearly visible flagging, fencing, or other suitable means of marking the area for avoidance. This boundary will be maintained during work at these locations, and these areas will be avoided during all construction activities to the extent possible. Where these areas will be disturbed, additional measures will be implemented. PG&E will develop and implement a Revegetation and Monitoring Plan, as described in APM BIO-03, which will include measures for special-status plant species that may be impacted by project construction. This plan will include specific measures for Monterey spineflower, which will be impacted by project activities, as well as general measures in the event that other special-status plant species are encountered prior to or during project construction.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-5. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
BIO-05: Conduct Environmental Training for All Crewmembers. A qualified biologist will develop an environmental training program, and an environmental representative will present the training to all crew members before they begin work on the project. The training will describe special-status species and sensitive habitats that could occur within the project area, protection afforded these species, and the avoidance and minimization measures necessary to avoid/minimize impacts. Penalties for violations of environmental laws will also be incorporated into the training session. Each crewmember will be provided with an informational training handout and a decal to indicate that he/she has attended the training.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-3. Refer to Section 3: Environmental Setting and Impacts.
BIO-06: Avoidance of Burrows on Site. To the maximum extent feasible, burrows will be avoided.	**Deleted:** The APM has been deleted because other measures address avoidance of burrows in special status species habitat and it has no clear standards against which to measure success of implementation.
BIO-07: Work During Daytime Hours. Work will be conducted between sunrise and sunset in areas with suitable upland habitat for Santa Cruz long-toed salamander, unless approved by a qualified biologist or required due to an emergency situation. Suitable upland habitat includes areas with small mammal burrows, tree roots, dense leaf litter, and fallen logs in coastal oak woodlands, willow riparian woodlands, and dense coastal scrub (especially on north-facing slopes) within 1 mile of known and potential breeding ponds for Santa Cruz long-toed salamander.	**Deleted:** The AMP has been deleted because other measures address avoidance of Santa Cruz long-toed salamander.
BIO-08: On-Site Biological Monitoring. Under the direction of the PG&E Project Biologist, a qualified biologist will be present at all active construction areas in biologically sensitive areas.	**BIO-08: On-Site Biological Monitoring.** Under the direction of the PG&E Project Biologist, a CPUC-approved biologist will be present at all active construction areas in biologically sensitive areas

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
BIO-09: Special-status Wildlife in the Project Areas. If a special-status species is observed on site, crews will immediately stop work when it is safe to do so and will contact the qualified biologist. Crews will not be permitted to touch, handle, or relocate special-status wildlife. A communication protocol will be developed and provided to all project personnel to guide the special-status species reporting. If a biological monitor is not in the immediate area to document the resource observation, crews will immediately contact the Environmental Compliance Manager and the PG&E Project Biologist.	**BIO-09. Special-status Wildlife in the Project Areas.** If a special-status species is observed on site, crews will stop work as quickly as is safe to do so and will contact the CPUC-approved biologist. Crew members will not be permitted to touch, handle, or relocate special-status wildlife. Notification and reporting guidelines established in the MMCRP will be implemented. If there is no CPUC-approved biologist in the immediate area to document the resource observation, crews will contact the Environmental Compliance Manager and the PG&E Project Biologist.
BIO-10: Construction Site Speed Limits. When safe to do so, a speed limit of 15 miles per hour will be observed on unpaved access routes, and crews will maintain awareness for wildlife in the roadway. Travel on paved roadways will be conducted according to established speed limits or as safety follows.	**BIO-10. Construction Site Speed Limits.** When safe to do so, a speed limit of 15 miles per hour will be observed on unpaved public access routes, and crews will maintain awareness for wildlife in the roadway. Travel on public roadways will be conducted according to established speed limits or as safety allows.
BIO-11: Minimization of Impacts to Santa Cruz Long-Toed Salamander. PG&E is consulting with a Santa Cruz long-toed salamander expert to develop measures for avoiding the impacts to this species. PG&E expects to provide an updated measure in February of 2012.	**Deleted:** The APM has been deleted because other measures more thoroughly address impacts to the Santa Cruz long-toed salamander.
BIO-12: Nesting Birds. If work is scheduled to occur during the avian nesting season (February through August), active work areas will be surveyed by a qualified biologist within 15 days before work begins in those areas to determine if any nesting birds are present. Exclusionary buffer zones will be established by a qualified biologist around any active nests within the project area. Typical exclusionary buffer zones will be 250 feet for raptors and a minimum of 50 feet for non-raptors; however, the size of the buffer zone may also be modified at the discretion of the biologist based on the following factors: 1) the species' sensitivity to disturbance, 2) the topography surrounding the nest site, and 3) its concealment from project activities. In addition to exclusionary buffers, helicopters will not be permitted to hover over active nests, regardless of height. If construction activities are required within an exclusionary buffer zone, the nest will be monitored for disturbance by a qualified biologist until the young have fledged and are independent of the adults. Nest disturbance will be assessed based on behavioral cues such as time off the nest, hesitation approaching the nest, and incessant	**Superseded:** The APM has been superseded by Mitigation Measure Biology-11. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
chattering and bill swiping, among other indications. All potential sources of nest disturbance, including non-construction activities, will be assessed and documented. If no nest disturbance is observed, work may continue. If the biologist determines that activities are causing nest disturbance, work will not be allowed to continue within the buffer zone until the young have fledged. In the event of an unforeseen circumstance regarding avian species, the PG&E Avian Protection Plan Manager will be consulted.	
BIO-12A: Nesting Bald and Golden Eagles. Construction activities are anticipated to occur during the nesting season for bald and golden eagles (eagles) (January – August). PG&E will retain a qualified biologist to conduct preconstruction surveys for all construction activities that will occur near suitable breeding habitat within one-mile of the project. Surveys will include the power line route, staging areas, pull sites, and areas of access road improvements where ground disturbance or vegetation clearing/tree removal is required, at a frequency and timing appropriate for nest detection. Helicopters may be used to conduct aerial surveys to document nests up to one mile from project work areas. Helicopter surveys will be appropriately scheduled during different phases of the eagle nesting season. Follow-up terrestrial surveys will be conducted of nests observe by aerial survey, where accessible. Subsequent monitoring of nests will be conducted to check on the status of each nest. Nest monitoring will be conducted using the best method for nest observation (by air or ground) depending on the specific landscape characteristics surrounding each nest. The project biologist will determine the number of site intervals and frequency for monitoring program once initial surveys are completed. Active nests will be monitored by a qualified biologist at a schedule appropriate to the work schedule and nest characteristics to ensure that nesting pairs are not impacted by construction activities. If no active eagle nests are detected, no additional mitigation measures are required.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-12. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
BIO-12B: Nesting Bald and Golden Eagles. If active bald and golden eagle nests are detected in areas exposed to urban-related disturbances (e.g., air, vehicle, pedestrian traffic, loud community events, or operating farm equipment), a 0.25 mile buffer will be established around the nest to exclude project activities that will be taking place from the ground within that distance. Work occurring near this 0.25 mile buffer will be paired with a monitoring program implemented from APM Bio-12A to monitor the nest status during construction. At the discretion of a project biologist, the buffer area may be increased around active eagle nests detected in more rural or undisturbed environments. Use of helicopters will be restricted to necessary trips to install and remove towers and poles, install power lines, and deliver and remove equipment to the areas. Helicopter flight paths will be designed to conform to project-specific requirements (i.e., safety regulations, municipal guidelines, etc.) and will also be designed to minimize and avoid impacts to eagle nests by maintaining a 0.5 mile buffer from active eagle nests to avoid helicopter disturbance of active nests identified during project preconstruction surveys. If active nests occur less than 0.5 miles from planned helicopter flight paths, especially those near landing areas, coordination with appropriate overseeing agencies is recommended to adjust flight paths to a route that is consistent with all project requirements.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-12. Refer to Section 3: Environmental Setting and Impacts.
BIO-13: Raptor Protection Guidelines for New Poles. The majority of the project has been designed to conform to the suggested guidelines in the following documents: • Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 – Avian Power Line Interaction Committee (APLIC), 1994 • Avian Protection Plan Guidelines – APLIC and U.S. Fish and Wildlife Service, April 2005 • Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 – APLIC, 2006 The project's final design and installation will reflect these suggested guidelines; however, no 115 kV insulators have been manufactured that	**BIO-13. Raptor Protection Guidelines for New Poles.**The majority of the project has been designed to conform to the suggested guidelines in the following documents: • Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 –APLIC, 1994 • Avian Protection Plan Guidelines – APLIC and USFWS, April 2005 • Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 – APLIC, 2006 The project's final design and installation will reflect these suggested guidelines; however, no 115 kV insulators have been manufactured that meet the recommended 71-inch horizontal phase to ground clearance

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
meet the recommended 71-inch horizontal phase to ground clearance guideline. As a result, the project will not conform to this suggested guideline.	guideline. As a result, the project will not reflect to this suggested guideline, which is not required to minimize significant effects.
BIO-14: Pre-construction Surveys for Special-Status Wildlife. Pre-construction surveys for special-status wildlife species will be conducted by a qualified biologist at all work areas within 2 weeks or as appropriate for species requiring survey methods during specific seasons before construction begins at those work areas. If a special-status species is encountered, PG&E will avoid the species. If a special-status species cannot be avoided, the appropriate agency or agencies will be notified.	**Deleted:** The APM has been deleted because other measures provide more specificity on the requirements for pre-construction surveys for special status wildlife that could occur in the project corridor.
BIO-15: Avoidance of Roosting Bats. When feasible, tree-trimming and tree-removal activities will be conducted during warmer periods, outside of the bat breeding season, in the presence of a qualified biologist. If vegetation-removal activities will be conducted during the bat breeding season, a habitat evaluation of those areas will be performed to assess the habitat's potential to support sensitive bat species. As necessary, an exclusionary buffer around active roost features will be maintained during project activities; the size of the buffer zone may be modified at the discretion of the qualified biologist based on the species' sensitivity to disturbance. A qualified biologist will monitor roost site exclusion zones during project activities to determine if roosting activity is influenced by noise or other activities and to determine when young bats are able to fly from the roost. Exclusion buffers may be removed after a qualified biologist has determined that bats have vacated the occupied roost sites. If project activities cannot avoid directly impacting active colonial roost sites, PG&E will contact the CDFG to discuss implementing alternative measures.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-14. Refer to Section 3: Environmental Setting and Impacts.
BIO-16: Avoidance and Minimization of Impacts to San Francisco Dusky-footed Woodrat. During the pre-construction surveys, described in APM BIO-14, a qualified biologist will identify potential San Francisco dusky-footed woodrat houses within 50 feet of project activities. At the discretion of a qualified biologist, an exclusion buffer will be established around any woodrat houses that can be avoided, and these exclusion zones will be flagged or fenced. If impacts to a woodrat house are	**Superseded:** The APM has been superseded by Mitigation Measure Biology-15. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
unavoidable, PG&E will work with a qualified biologist to develop a Woodrat Trapping and Relocation Plan, and will coordinate with the CDFG to handle and relocate the San Francisco dusky-footed woodrats.	
BIO-17: Protection and Inspection of Open Excavations for Entrapped Wildlife. Excavations that may act as pitfall traps (i.e., those exceeding 6 inches in depth) will be securely fenced or covered. In biologically sensitive areas, the fences around excavations will provide one-way passage for small animals to exit the immediate work area in the event they are encountered. Covers will be strong enough to prevent wildlife from falling into the excavations and will be secured to prevent burrowing underneath the covers. Existing pole excavations will be inspected before they are filled to ensure the absence of wildlife. If a special-status species is located in the excavation or an area of impact and cannot escape, the species will be avoided. Project activities in the immediate work area will cease and the CDFG and/or USFWS (as appropriate, depending on the species listing status) will be contacted.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-17. Refer to Section 3: Environmental Setting and Impacts.
BIO-18: Inspection of Construction Materials for Wildlife. Before being moved, all poles and similar construction materials stored overnight at the construction site will be thoroughly inspected for animals. If special-status species are observed within poles or similar construction materials, they will be avoided and allowed to leave of their own volition.	**BIO-18: Inspection of Construction Materials for Wildlife.** Before being moved, all poles and similar construction materials stored overnight at the construction site will be thoroughly inspected for animals. If special-status species are observed within poles or similar construction materials, they will be avoided and allowed to leave of their own volition.
BIO-19: No Pets in the Project Area. Crewmembers and project personnel will not be allowed to bring pets to the project area.	**BIO-19. No Pets in the Project Area.** Crewmembers and project personnel will not be allowed to bring pets to the project area
BIO-20: No Firearms in the Project Area. Firearms will be prohibited in all work areas, unless carried by authorized security personnel.	**BIO-20. No Firearms in the Project Area.** Firearms will be prohibited in all work areas, unless carried by authorized security personnel.
BIO-21: Garbage and Trash Management. Littering will be prohibited. Food-related garbage and trash will be enclosed in covered containers and removed from the project area daily. Storage yards, contractor yards, and other non-temporary work areas may use centralized areas to aggregate and store wastes. Covered, water-tight waste bins will be required for permanent stored wastes. Stored waste containers will be emptied once a week at a minimum.	**BIO-21. Garbage and Trash Management.** Littering will be prohibited. Food-related garbage and trash will be enclosed in covered, secured containers and removed from the project area as necessary, but no less than weekly. Storage yards, contractor yards, and other non-temporary work areas may use centralized areas to aggregate and store wastes.

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
BIO-22: Avoidance and Minimization of Impacts to Sensitive Vegetation (Coastal Scrub). Before construction begins, the boundaries of coastal scrub that can be avoided will be delineated with clearly visible flagging or fencing, or otherwise marked for avoidance. Alternatively, the project access/work areas near coastal scrub vegetation that can be avoided will be marked. The flagging, fencing, and/or other marking will be maintained in place for the duration of construction at each location until work is completed at that site, and these areas will be avoided to the maximum extent practical. Where feasible, measures in the Revegetation and Monitoring Plan, described in APM BIO-03, will be implemented to restore areas of coastal scrub vegetation that will be disturbed during construction activities.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-16. Refer to Section 3: Environmental Setting and Impacts.
BIO-23. Pre-Construction Santa Cruz Long-toed Salamander Study. In order to better assess the potential for SCLTS to be present in areas where excavation activities will occur as part of the project, PG&E will commission a study of sites that were determined to be potential SCLTS upland habitat within 0.6 mile of known or potential SCLTS breeding sites. The SCLTS study will be conducted by a qualified biologist using the following methodology that must be approved by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). The SCLTS study is currently recommended at 18 sites. Beginning in late summer of the year prior to the scheduled project, each of these workspaces will be enclosed with silt-fencing buried to a depth of 6 inches under the guidance of a qualified biologist. Pitfall traps will be placed in pairs (inside and outside of the enclosure) approximately every 50 feet, and/or at each corner. Silt fencing and pitfall traps will be installed no later than October 15 of the year prior to the start of scheduled construction, and will be monitored through March 15 of the following year. Traps will be opened in the evenings if it rains during the day and/or if the forecast for rain is 50 percent or greater (using forecast data from the National Weather Service), and checked the following morning. Traps will remain open for at least 24 hours after rainfall, and will be closed between rain events. Closed traps will be checked at least once per week to ensure that they are secure. All vertebrates will be identified to species. If a SCLTS is captured outside of the enclosure, it will	**Deleted:** The APM was deleted because the study is a separate project not within CPUC jurisdiction. Additional measures address impacts to Santa Cruz long-toed salamander.

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
be released outside of the study area in the nearest suitable upland area and in the presumed direction of travel. If a SCLTS is captured within a study area, it will similarly be released outside of the silt fence, and the USFWS and CDFG will be contacted within 24 hours for further consultation. All pitfall traps will be removed within 2 weeks of completion of the study. Silt fencing will be removed under the guidance of a qualified biologist after the study, unless work is anticipated after October 15 (see APM BIO-25, below). If PG&E determines that the 18 project work sites included in the SCLTS study need to be expanded after the salamander study has already been completed, PG&E will consult with a permitted biologist to evaluate and appropriately adjust the boundaries of work areas in a manner that minimizes the risk to the species. In consultation with the permitted biologist, PG&E may expand the work areas into areas not considered suitable for SCLTS (e.g., roadways, disturbed areas, etc.).	
BIO-24: Conduct Specialized Environmental Training for SCLTS. Prior to construction at locations where SCLTS could occur, all construction personnel entering these work areas will attend an endangered species orientation that describes the SCLTS and its protected status, as well the procedure to follow if one is seen during construction. During the course of the project, all new construction personnel will receive this training before starting work. If a SCLTS is observed within the project footprint, work will cease, and USFWS and CDFG will be contacted.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-3. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
BIO-25: Seasonal Ground Disturbance Windows. To the extent possible, ground disturbance will not take place between October 15 and March 15 to avoid affecting SCLTS during their breeding migration or during outward-bound dispersal of post-metamorphic juveniles. Project construction in workspaces identified as providing potential upland SCLTS habitat is scheduled to begin in the 2013during the dry season. If project construction is anticipated to extend past October 15, all project workspaces within 0.6 mile of a known or potential breeding pond will be enclosed with 3-foot silt-fencing buried to a depth of 6 inches to prevent SCLTS from entering the work areas during migration or dispersal. Fencing will be in place prior to the first significant rainfall (0.25 inches or greater), and all fencing will be completed no later than October 15. The majority of these workspace locations are presented in Appendix A of the Santa Cruz Long-Toed Salamander Habitat Assessment. Other sites may be identified as the project progresses. Installation of the silt fencing as a barrier to SCLTS movement will be conducted under the guidance of an approved biological monitor. Fencing will be in place until activities at a particular site are completed. While the fencing is in place, it will be checked at least weekly by a qualified biologist for the presence of the species.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-7. Refer to Section 3: Environmental Setting and Impacts.
BIO-26: Reduced Vegetation Removal. For all sites west of Corralitos Creek, including those within and greater than 0.6 mile of a known or potential breeding pond, clearing of native vegetation for project facilities will be reduced as much as feasible. Clearing of vegetation in these areas will not occur during the rainy season (October 15 through March 15), when SCLTS are more likely to be at or near the surface. Vegetation will be cleared by hand (chain-saws and similar hand equipment are acceptable) without the use of heavy equipment. Clearing of vegetation will occur with a biological monitor present to ensure that adjacent habitat is not unnecessarily disturbed.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-8. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
BIO-27: Avoidance and Minimization of Impacts to Monterey Spineflower. Before construction begins and during the appropriate phenological periods, Monterey spineflower surveys will be conducted in areas where they were previously identified or have the potential of occurring in project work areas. Agricultural fields and developed areas will not be surveyed due to the lack of suitable habitat for supporting rare plant species. The boundaries of Monterey spineflower populations near project work areas, or the limits of project work areas or access roads/routes near Monterey spineflower populations, that will be avoided will be delineated with clearly visible flagging or fencing. The populations that will be impacted will be recorded using a submeter-accurate global positioning system ("GPS") unit, and the total acreage of temporary and permanent impacts will be calculated. In areas where Monterey spineflower is present, work will be conducted in late summer or early fall to avoid impacting these plants before they have set seed, if feasible. If this is not feasible and it is possible to collect seed prior to the start of construction, seed will be collected from the Monterey spineflower individuals and will be used during restoration following the completion of construction activities. If it is not feasible to conduct work before the spineflower has set seed, all areas occupied by the spineflower where equipment will be operated or where trampling will occur will be protected by steel plates or plywood will be removed as soon as construction activity in that area has been completed, in order to minimize disruption of photosynthesis by the spineflower plants. One year of post-construction monitoring of areas of occupied spineflower habitat impacted by construction will be conducted by a qualified botanist to ensure that the spineflower populations have recovered and that the sites are not being invased by invasive species. If invasive species are encroaching on the sites, they will be removed. If spineflower populations have not recovered to pre-construction levels after 1 year, remedial actions may include broadcasting spineflower seed collected from plants in immediately adjacent areas and shallow soil disturbance (e.g., raking) to stimulate spineflower germination and establishment. To mitigate for the anticipated less than 0.1 acre of occupied Monterey spineflower habitat that is likely to be permanently impacted by the	**Superseded:** The APM has been superseded by Mitigation Measure Biology-1. Refer to Section 3: Environmental Setting and Impacts.

project, PG&E will enhance habitat for Monterey spineflower by	

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
removing iceplant and other non-native plants, including, if present, European beach grass (Ammophila arenaria). After removing the invasive plants, the area will then be seeded with Monterey spineflower seed collected from impacted plants. A mitigation monitoring and reporting plan will be developed to ensure compliance. The plan will include pre- and post-treatment vegetation sample plot surveys to record the percent cover of invasive plants and Monterey spineflower prior to and 1 year after treatment. The plots will be done during the appropriate phonological period for Monterey spineflower to allow for positive identification. Performance criteria will be identified in the mitigation monitoring and reporting plan to ensure successful restoration and enhancement of Monterey spineflower populations. Reports will contain pre- and post-treatment photographs of the habitat enhancement area and each sample plot. The enhanced habitat will be monitored for a minimum of 1 year post-treatment to measure the efficacy of non-native plant removal on Monterey spineflower populations. If Monterey spineflower does not colonize the area, remedial actions that may include rebroadcasting spineflower seed collected from plants in immediately adjacent areas and shallow soil disturbance (e.g., raking) to stimulate spineflower germination and establishment will be implemented.	
BIO-28: Habitat Enhancement of Oak Woodland. At individual work areas where a SCLTS is detected during project activities, PG&E will implement measures to enhance upland SCLTS habitat after construction is completed. Measures may include, but not be limited to, removal of invasive species within the affected work area, depositing wood debris, or planting new trees depending on site specific conditions and needs. PG&E will coordinate with the FWS to develop a site specific prescription to ensure the affected work area is restored with appropriate habitat enhancements for SCLTS.	**Superseded:** The APM has been superseded by Mitigation Measure Biology-11. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
BIO-29: Installation of Surface Barriers on Overland Access Routes. When it is necessary for vehicles and other construction equipment to travel on designated overland routes to individual work sites where SCLTS have been detected, PG&E will avoid burrows or other potential refugia along the route to the extent feasible. If it is not feasible to avoid traveling over burrows, a temporary surface barrier (e.g. plywood, steel plate, fiberglass matting) will be placed in practicable areas (based on topography, soil type, safety, etc.). over burrows immediately prior to using the overland access route. The temporary surface barrier will be immediately removed at the end of each day (or sooner).	**BIO-29. Installation of Surface Barriers on Overland Access Roads.** When vehicles and other construction equipment are required to travel on designated overland routes to reach work sites within suitable upland habitat, determined per APM BIO-25, for Santa Cruz long-toed salamander, the CPUC-approved, qualified biologist will survey the route and flag all burrows and/or other potential refugia along the route for avoidance. If travel over burrows is determined unavoidable (e.g. no other route that can support vehicle travel is available due to space or topography constraints), a temporary surface barrier (e.g. plywood, steel plate, or fiberglass matting) will be placed over burrows immediately prior to using the overland access route in areas where practicable (based on topography, soil type, safety, etc.). The temporary surface barrier will be immediately removed at the end of each day (or sooner). If it is not practicable to place a temporary surface barrier or avoid the burrow within the overland route, no access will occur in these areas until the PG&E Project Biologist contacts USFWS, CDFW, and the CPUC for additional instructions and measures to be implemented that ensure no impacts to Santa Cruz long-toed salamanders.
Cultural Resources	
CUL-01: Prior to construction, all PG&E, contractor, and subcontractor project personnel will receive training regarding the appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws and regulations, including the potential for exposing subsurface cultural resources and paleontological resources and how to recognize possible buried resources. This training will include a presentation of the procedures to be followed upon discovery or suspected discovery of archaeological materials, including Native American remains and their treatment, as well as of paleontological resources.	**CUL-01:** Prior to construction, all PG&E, contractor, and subcontractor project personnel will receive training regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures and to comply with the applicable environmental laws and regulations, including the potential for exposing subsurface cultural resources and paleontological resources and how to recognize possible buried resources. This training will include a presentation of the procedures to be followed upon discovery or suspected discovery of archaeological materials, including Native American remains and their treatment, as well as of paleontological resources.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
CUL-02: Prior to construction, SCPL-2 will be evaluated to determine if it is eligible for listing on the CRHR. If SCPL-2 is eligible, PG&E will not improve the road and will place steel plates along the existing access road to protect this resource in the event the road is used during wet conditions. If SCPL-2 is not eligible, PG&E will use the access road in its current state. Regardless of eligibility, resources identified within SCPL-2 that are outside of the existing access road will be flagged prior to project construction, and the proposed pull site will be situated to avoid the flagged location. Proper signage that states "Exclusion Zone, No Access" will be posted in the restricted area. All crewmembers will be directed not to enter the exclusion zone.	**Deleted:** The APM was deleted because PG&E has since completed the eligibility evaluation for SCPL-2 and determined that the resource is not eligible for listing on the CRHR.
CUL-03: The area between the three poles located approximately 1,000 feet northeast of the intersection of Whiteman Avenue and Harrison Way will be examined by a qualified archaeologist prior to any ground-disturbing activities. Any identified cultural resources that can be avoided will be flagged and marked with proper signage that states "Exclusion Zone, No Access" in the restricted area. All crewmembers will be directed not to enter the exclusion zone. If avoidance of an identified cultural resource is not feasible, the resource will be formally evaluated for its eligibility to be listed on the CRHR by a qualified professional historian prior to project construction. Once the find has been identified and evaluated, PG&E's cultural resources specialist will make the necessary plans for treatment of the find and mitigation of impacts if the find is determined to be significant as defined by CEQA.	**Superseded:** The APM has been superseded by Mitigation Measure Cultural Resources-2. Refer to Section 3: Environmental Setting and Impacts.
Geology, Soils, and Mineral Resources	
GEO-01: PG&E will contract a professional geotechnical engineer to conduct a geotechnical investigation in areas that are suspected to have unstable soils or that could be subject to strong ground shaking. PG&E will consider the recommendations and findings in the geotechnical report in the project's final design to minimize the effects of expansive soils, differential settling, and strong ground shaking. When necessary, design features, such as engineered subgrades and reinforced foundations, will be incorporated into the project's design. In addition, PG&E will comply with all applicable codes and seismic standards.	**Superseded:** The APM has been superseded by Mitigation Measure Geology-1. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
Hazards and Hazardous Materials	
HAZ-01: Prior to construction, all PG&E, contractor, and subcontractor project personnel will receive training in the applicable environmental laws and regulations associated with hazardous materials, the use and storage of hazardous materials used on the project, and spill response and cleanup BMPs in the event of an unanticipated release.	**Superseded:** The APM has been superseded by Mitigation Measure Hazards-1. Refer to Section 3: Environmental Setting and Impacts.
HAZ-02: PG&E will update the existing SPCC Plan for Rob Roy Substation and ensure compliance with applicable standards 160 by incorporating the design, control, training, containment, and response requirements for the increased amounts of hydrocarbon and oil storage that will be located at the modified substation, so that hazardous materials will not encounter the soil.	**HAZ-02:** PG&E will update the existing SPCC Plan for Rob Roy Substation and ensure compliance with applicable standards 160 by incorporating the design, control, training, containment, and response requirements for the increased amounts of hydrocarbon and oil storage that will be located at the modified substation, so that hazardous materials will not encounter the soil.
HAZ-03: Smoking will not be permitted during fire season, except in a barren area that is cleared to mineral soil at least 10 feet in diameter or within vehicles or 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 grass and woodlands.	**HAZ-03:** Smoking will not be permitted during fire season, except in a barren area that is cleared to mineral soil at least 10 feet in diameter or within vehicles or 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 grass and woodlands.
HAZ-04: PG&E construction crew trucks and equipment will have at a minimum a standard round point shovel and a fire extinguisher. If construction activities likely to cause sparks—e.g., welding, grinding, or grading in rocky terrain—are conducted, emergency fire tool boxes will be readily available to crews. The tool boxes will contain fire-fighting items such as shovels, axes, and water.	**HAZ-04:** PG&E construction crew trucks and equipment will have at a minimum a standard round point shovel and a fire extinguisher. If construction activities likely to cause sparks (e.g., welding, grinding, or grading in rocky terrain) are conducted, emergency fire tool boxes will be readily available to crews. The tool boxes will contain firefighting items such as shovels, axes, and water.

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
Hydrology and Water Quality	
HYD-01: PG&E will file a Notice of Intent with the State Water Resources Control Board for coverage under the General Construction Storm Water Permit and will prepare and implement a SWPPP in accordance with General Order No. 99-08-DWQ. Implementation of the SWPPP will help stabilize graded areas and waterways and reduce erosion and sedimentation. The following measures are generally drawn from that permit and PG&E's standard practices, and will be included in the SWPPP prepared for the construction of the project: • All BMPs will be on-site and ready for installation before the start of construction activities. • BMPs will be developed to prevent the acceleration of natural erosion and sedimentation rates. A monitoring program will be established to ensure that the prescribed APMs are followed throughout project construction. • Examples of BMPs include the following measures: – straw wattles, water bars, covers, silt fences, sensitive area access restrictions (e.g., flagging), or other sediment containment methods placed around and/or down slope of work areas prior to earth disturbing activities and before the onset of winter rains or any anticipated storm events; – mulching, seeding, or other suitable measures to protect exposed areas during construction activities as necessary; – installation of additional silt fencing prior to construction to address unforeseen runoff into nearby wetlands and drainages; – use of brooms and shovels (as opposed to water) when possible to maintain a clean site; – construction of a stabilized construction entrance/exit to prevent tracking of dirt onto public roadways; establishment of a vehicle storage, maintenance, and refueling area, if needed, to minimize the spread of oil, gas, and engine fluids;	**HYD-01:** PG&E will file a Notice of Intent with the State Water Resources Control Board for coverage under the General Construction Storm Water Permit and will prepare and implement a SWPPP in accordance with General Order No. 2009-0009-DWQ. Implementation of the SWPPP will help stabilize graded areas and waterways and reduce erosion and sedimentation. The following measures are generally drawn from that permit and PG&E's standard practices, and will be included in the SWPPP prepared for the construction of the project: . All Best Management Practices (BMPs) will be on site and ready for installation before the start of construction activities. . BMPs will be developed to prevent the acceleration of natural erosion and sedimentation rates. A monitoring program will be established to ensure that the prescribed BMPs are followed throughout project construction. All materials shall be certified weed-free; Examples of BMPs include, but are not limited to, the following measures. The appropriate measures will be applied depending on specific site conditions. • Straw wattles, water bars, covers, silt fences, coir logs, sensitive area access restrictions (*e.g.*, flagging), or other sediment containment methods placed around and/or down slope of work areas prior to earth disturbing activities and before the onset of winter rains or any anticipated storm events. • Mulching, seeding, or other suitable measures to protect exposed areas during construction activities as necessary; • Installation of additional silt fencing prior to construction to address unforeseen runoff into nearby wetlands and drainages; • Use of brooms and shovels (as opposed to water) when possible to maintain a clean site; . Construction of a stabilized construction entrance/exit

Table 2.9-1 (*Continued*): Original and Final APMs

Original APM	Final, Deleted, or Superseded APM
– no overnight parking of mobile equipment within 100 feet of wetlands, culverts, or drainages; and – positioning stationary equipment (e.g., pumps, generators, etc.) used or stored within 100 feet of wetlands, culverts, or drainages within secondary containment. • All BMPs will be inspected before and after each storm event. BMPs will be maintained on a regular basis, and replaced as necessary throughout the course of construction. A Qualified SWPPP Practitioner will supervise placement of silt fencing to limit the area of disturbance. The silt fence will be monitored regularly to ensure effectiveness.	• to prevent tracking of dirt onto public roadways; • Establishment of a vehicle storage, maintenance, and refueling area, if needed, to minimize the spread of oil, gas, and engine fluids; • No overnight parking of mobile equipment within 100 feet of wetlands, culverts, or drainages; and • Positioning stationary equipment (*e.g.*, pumps, generators, etc.) used or stored within 100 feet of wetlands, culverts, or drainages within secondary containment. All BMPs will be inspected before and after each storm event. BMPs will be maintained on a regular basis, and replaced as necessary throughout the course of construction. A Qualified SWPPP Practitioner will supervise placement of silt fencing to limit the area of disturbance. The silt fence will be monitored regularly to ensure effectiveness.
Noise	
NOI-01: Equipment will be positioned to maximize the distance from residences and to maintain safe and effective operation.	**NOI-01:** Equipment will be positioned to maximize the distance from residences and to maintain safe and effective operation.
NOI-02: All internal combustion engine-driven equipment will be equipped with exhaust mufflers that are in good condition and that meet or exceed the manufacturers' specifications. All equipment will be maintained and tuned according to manufacturers' recommendations.	**NOI-02:** All internal combustion engine-driven equipment will be equipped with exhaust mufflers that are in good condition and that meet or exceed the manufacturers' specifications. All equipment will be maintained and tuned according to manufacturers' recommendations.
NOI-03: When backup alarms have more than one volume setting, they will be set to the lowest volume setting that meets OSHA safety requirements.	**Deleted:** PG&E requested that the APM be removed. CPUC removed the mitigation measure because it is not needed to reduce impacts to less than significant levels.
NOI-04: When construction activities are located within 50 feet of residences, an approximately 3-foot-tall temporary noise barrier will be placed between the residences and any noise-generating equipment that cannot move under its own power while in use.	**Superseded:** The APM has been superseded by Mitigation Measure Noise-1. Refer to Section 3: Environmental Setting and Impacts.

Table 2.9-1 (*Continued*): Original and Final APMs	
Original APM	**Final, Deleted, or Superseded APM**
NOI-05: Helicopters will maintain a height of at least 500 feet when passing above residential areas, except when they are at temporary construction areas or actively assisting with the stringing of conductor or other project activities. Helicopters will maintain a lateral distance of at least 500 feet from schools when in session.	**NOI-05:** Helicopters will maintain a height of at least 500 feet when passing above residential areas, except when they are at temporary construction areas or actively assisting with the stringing of conductor or other project activities. Helicopters will maintain a lateral distance of at least 500 feet from schools when in session.
Public Services	
PS-01: At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers in the project vicinity, including, but not limited to, the Santa Cruz County Fire Department, Aptos/La Selva Fire Protection District, Santa Cruz County Sheriff's Office, and Watsonville Police Department. PG&E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.	**PS-01:** At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers in the project vicinity, including, but not limited to, the Santa Cruz County Fire Department, Aptos/La Selva Fire Protection District, Santa Cruz County Sheriff's Office, and Watsonville Police Department. PG&E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.
Transportation and Traffic	
TRA-01: Reflective bollards will be installed around the base of TSP foundations to increase vehicle safety along Dalton Lane and at the corner of McDonald Road and Freedom Boulevard.	**TRA-01:** Reflective bollards will be installed around the base of TSP foundations to increase vehicle safety along Dalton Lane and at the corner of McDonald Road and Freedom Boulevard.
TRA-02: At least 2 weeks prior to work within 1,000 feet of any Santa Cruz Metropolitan Transit District (METRO) bus stop, PG&E will coordinate with the METRO to inform them of the project's potential to impact the bus stop. PG&E will provide the METRO with information regarding the location of the bus stop; the anticipated date, time, and duration of construction activities; and a telephone contact number.	**TRA-02:** At least 2 weeks prior to work within 1,000 feet of any Santa Cruz Metropolitan Transit District (METRO) bus stop, PG&E will coordinate with the METRO to inform them of the project's potential to impact the bus stop. PG&E will provide the METRO with information regarding the location of the bus stop; the anticipated date, time, and duration of construction activities; and a telephone contact number.

3 ENVIRONMENTAL SETTING AND ENVIRONMENTAL IMPACTS

3.1 AESTHETICS

3.1.1 Environmental Setting

Regional Visual Character

The project is located in the foothills of the northern California Coast Ranges and southwest of the Santa Cruz Mountains. The project corridor is in unincorporated Santa Cruz County, between the City of Watsonville to the southeast and the community of Aptos to the west, near the communities of Day Valley, Corralitos, and Amesti.

The project corridor traverses an area of rolling terrain that includes agricultural valleys, grassland, and low ridgelines forested with mature trees. The land use and development patterns within the project corridor consist of a mix of moderate-density urban housing, low-density rural residential, agriculture, public parks, and private open spaces. The Santa Cruz Mountains, with peaks rising to over 3,000 feet, form a backdrop for many views toward the north.

Local Visual Character

Scenic Quality

Scenic quality is the primary indicator of the intrinsic visual beauty of a landscape and of the positive responses it evokes in visitors. The scenic quality of the project corridor is moderate. While there is variety in topography, there is also a wide disparity between native and non-native vegetative patterns as well as cultural modifications that are vivid and lack overall visual integrity.

Scenic quality is determined using seven key factors:

- ***Landform****:* The general topography varies from gently sloped areas around College and Pinto Lakes to rolling foothills alternating between Corralitos, Pleasant Valley, and Day Valley.
- ***Vegetation****:* Vegetation is extremely varied from agriculture (principally row crops) to a wide mixture of native and non-native plantings associated with rural residential development. Vegetation patterns are not distinctive.
- ***Water****:* Primary water bodies include the upper reaches of College Lake, Pinto Lake, and Corralitos Creek. Additional aquatic features consist of smaller unnamed creeks and drainages and other seasonally wet areas.
- ***Color****:* The soils in the project corridor are predominantly clay and loam and are red to light brown in color.

- ***Adjacent Scenery:*** Pinto Lake, Corralitos Creek, and the upper reaches of College Lake are visible from within the project corridor. The Santa Cruz Mountains are sometimes in view but are blocked in many areas by vegetation and foothill topography. The Pacific Ocean is not in view.
- ***Scarcity:*** The landscape of the project corridor is typical of the coastal agricultural lands and rural residential developments found throughout the immediate Santa Cruz County coastal region.
- ***Cultural (Man-made) Modifications:*** Much of the characteristic landscape is modified. Predominant cultural modifications include:
  - A road system
  - Vertical elements including: the existing single-circuit Green Valley-Camp Evers 115-kilovolt (kV) power line; the existing Cox-Freedom Segment distribution line; and service utility lines along all roads the corridor parallels or crosses
  - Cultivated orchards, vineyards, row crops, and open grazing lands
  - Fence lines
  - A wide variety of structures including urban and rural residences, greenhouses, agricultural storage buildings and other outbuildings
  - Parks

Landscape Units

There are five distinct characteristic landscapes within the project corridor foreground viewshed known as "landscape units." Each of these landscape units has distinguishing topographic, vegetation, and/or development patterns. Table 3.1-1 lists these landscape units and includes the approximate milepost locations starting from the Green Valley Substation, the primary affected viewers, and the number of residences within 600 feet of the project corridor. This distance provides perspective on the number of people in the vicinity of the project who may use public areas, and not necessarily all residences with views of the project. The visual character of each landscape unit, as shown in the representative photographs, is described here.

Table 3.1-1: Summary of Landscape Units

Proposed Project Component	Landscape Unit	Approximate Milepost Range	Primary Affected Viewers	Approximate Number of Residences in and within 600 feet of Project Corridor
Northern Alignment	Green Valley	0.0-1.2	Residents, Motorists	265
	Pinto Lake	1.2-1.9	Park Visitors, Residents	106
	Corralitos	1.9-4.5	Motorists, Residents	86
	Pleasant Valley/Day Valley	4.5-7.1	Residents, Motorists	137
Cox-Freedom Segment	Cox-Freedom	7.1-8.8	Motorists, Residents	172

Table 3.1-2 lists the representative photographs by each of the five characteristic landscape units. Photos #1 through Photo #24 in Figures 3.1-2 through 3.1-6 depict the visual conditions of the project corridor from public views. Figure 3.1-1 shows the locations of the viewpoints of the photos.

Table 3.1-2: Representative Photographs by Landscape Unit

Proposed Project Component	Landscape Unit	Representative Photograph Numbers within Figure 3.1-2
Northern Alignment	Green Valley	Photo #1 through Photo #4
	Pinto Lake	Photo #5 through Photo #6
	Corralitos	Photo #7 through Photo #10
	Pleasant Valley/Day Valley	Photo #11 through Photo #18
Cox-Freedom Segment	Cox-Freedom	Photo #19 through Photo #24

Key Observation Points (KOPs) are locations that provide a perspective of the project's visual impacts from area vantage points within each landscape unit. They are selected based on their relation to visual resources with varying levels of sensitivity that may be impacted by the proposed project and to provide a representation of the views within each landscape unit. KOPs typically include publicly accessible locations, such as areas in proximity to residences, recreational areas, and areas along roadways or travel corridors. Figure 3.1-1 shows the locations of the KOPs used in the analysis and their relation to each landscape unit. Eight KOPs were selected as a part of the visual analysis in Section 3.1.3.

Green Valley

The Green Valley area covers approximately 1 mile of the Northern Alignment, from its origination at Green Valley Substation to its crossing of Green Valley Road. The topography in this area is relatively flat with mostly sparse vegetative cover. Single-family homes and nearby agricultural fields characterize this unit, which also includes existing power lines and poles along the proposed alignment. Existing poles vary in height and are on average 61 feet tall. Primary viewers of this landscape unit are residents in unincorporated Santa Cruz County and motorists on local roadways.

Photos of the Green Valley landscape unit are shown in Figure 3.1-2. From Minto Road (Photo #1) the Green Valley Substation and associated power line poles are visible in the middleground, beyond an open field in the foreground. The Santa Cruz Mountains appear in the background. From Green Valley Substation, the project corridor runs north, bordered by agricultural fields to the east and the Green Valley residential neighborhood to the west (Photo #2). Residences have unobstructed views of the substation and several associated power line structures. The project corridor turns west at Dalton Lane, a small rural road (Photo #3) with

Figure 3.1-1: Project Landscape Units Photo Viewpoint and KOP Locations



SOURCES: Esri 2013, 2M Associates 2012, and Panorama Environmental, Inc. 2013

Scale: 1:48,000

LEGEND

- Project Corridor
- Photo Viewpoint Location and View Direction
- 4: KOP 1 — Simulation Viewpoint Location and View Direction
- Green Valley Landscape Unit
- Pinto Lake Landscape Unit
- Corralitos Landscape Unit
- Pleasant Valley / Day Valley Landscape Unit
- Cox-Freedom Landscape Unit

Mile 0 0.25 0.5 0.75 1

PANORAMA ENVIRONMENTAL, INC.

Figure 3.1-2: Green Valley Representative Photos (Photos #1 through #4)



Photo #1: Minto Road at Meidl Avenue looking northeast toward Green Valley Substation.



Photo #2: Agate Drive at Lapis Drive looking south toward Green Valley Substation.



Photo #3: Dalton Lane looking west.



Photo #4: Arroyo Drive at Mark Avenue looking southwest **(KOP #1)**.

Source: PG&E 2012

residential areas bordering it on both sides. Dalton Lane is bordered on one side by wood power poles with distribution underbuild (Photo #4).

Pinto Lake

This landscape unit runs west from Green Valley Road, which is an arterial street, to Kliewer Lane. The primary feature in this unit is Pinto Lake County Park, which is a landscaped public recreation facility characterized by a mixture of open lawns and mature tree clusters. The park also includes sports fields, picnic facilities, a playground, a fishing pier, and paved parking areas. Viewers of this area primarily consist of Pinto Lake Park users, including those traveling on the entrance road to the park. Residences in this landscape unit also have views toward the project corridor; however, to a large extent, the residential views are substantially screened by mature vegetation looking towards the proposed alignment.

Representative photos are shown in Figure 3.1-3. The project corridor, including the existing power line and power lines poles, passes through the park (Photos #5 and #6). The existing

Figure 3.1-3: Green Valley Representative Photos (Photos #5, #6)



Photo #5: Pinto Lake Park looking east **(KOP #2)**.



Photo #6: Pinto Lake Park looking west.

Source: PG&E 2012

poles are wooden, single-pole structures and are on average 60 feet tall. Mature trees that range in height up to 40 to 50 feet tall screen views of the existing power line from some locations within the park. The existing power line turns to the northwest, leaving the park and entering into an area that includes flat open agricultural fields and a few residences situated within the community of Amesti.

Corralitos

The project corridor, as it runs generally northwest from Kliewer Lane, traverses a sparsely settled area south of the community of Corralitos. This area is primarily agricultural, and is located within a gently sloping landscape that surrounds Corralitos Creek. Land uses consist of private orchards, vineyards, row crops, scattered single-family residences, and pastures interspersed with wooded riparian corridors. Intervening terrain and vegetation generally screen views of the project corridor from this portion of Amesti Road. Terrain or trees located between the corridor and public vantage points detract from the visibility of the power poles and lines by adding more varied visual features that draw attention to the trees and terrain in the foreground over the poles and power line in the middleground. The existing power lines and poles are generally as high as or higher than the vegetation and terrain in the area. Existing vertical elements seen within this landscape setting include wood power poles situated along the project corridor, as well as other wood utility poles.

Primary viewers of this landscape unit include a limited number of rural residents. Viewers also include motorists on Corralitos Road, Pioneers Road, and other local roadways spanned by the project corridor. Bicyclists and pedestrians use Amesti Road south of the project corridor. Public views of the project corridor are limited in this area.

Representative photographs are shown in Figure 3.1-4. The existing wood poles and power line in the project corridor cross a number of local roads, including Pioneers Road and Pioneer View Road (Photo #7). The existing wood poles and power line in the project corridor also cross two

Figure 3.1-4: Corralitos Representative Photos (Photos #7 through #10)



Photo #7: Pioneer View Road looking northwest.



Photo #8: Amesti Road looking west.



Photo #9: Corralitos Road near Skylark Lane looking north **(KOP #3)**.



Photo #10: Corralitos Road looking east.

Source: PG&E 2012

County designated Rural Scenic Roads—Amesti Road (Photo #8) and Corralitos Road (Photo #9), from which the existing poles and lines are visible. Utility structures are part of the landscape of this unit: an existing distribution line that is not a part of the proposed project also runs along Corralitos Road (Photo #10).

Pleasant Valley/Day Valley

West of Corralitos, the project corridor enters more hilly topography with denser woody vegetation and residential development. Orchards and vineyards are located in valleys. The majority of residential development is found in the western portion of this section near the Day Valley community. The existing alignment is adjacent to and visible from several residences and roadways, including Day Valley Road, Hames Road, Pleasant Valley Road, Meadow Road, and Cox Road. The existing power lines include single, double, and triple pole structures averaging approximately 49 feet in height. Viewers of the landscape unit are limited to residents in the communities of Pleasant Valley and Day Valley, as well as motorists on a number of lightly traveled local roadways.

Representative photos are included in Figures 3.1-5A and B. Existing vegetation screens in whole or in part the existing line (Photos #11, #12, and #13). There are open views toward the project corridor from agricultural areas with relatively flat topography (Photo #14) with wooded areas in the background. Just north of Day Valley Road in the community of Day

Figure 3.1-5A: Pleasant Valley/Day Valley Representative Photos (Photos #11 through #16)



Photo #11: Hames Hollow looking east.



Photo #12: Hames Hollow looking northwest.



Photo #13: Pleasant Valley Road at Hames Road looking north.



Photo #14: Hames Road near Pleasant Valley Road looking north **(KOP #4)**.



Photo #15: Jingle Lane near Day Valley Road looking southeast **(KOP #5)**.



Photo #16: Meadow Road at Pine Forest Drive looking southeast.

Figure 3.1-5B: Pleasant Valley/Day Valley Representative Photos (Photos #17, #18)



Photo #17: Downing Drive looking east.



Photo #18: Cox Road looking east.

Source: PG&E 2012

Valley, the project corridor passes within approximately 100 feet of several residences, crossing Quail Run, Jingle Lane (Photo #15), Meadow Road, Pine Forest Drive, and Downing Drive (Photos #16 and #17). The Northern Alignment ends just west of Cox Road (Photo #18).

Cox-Freedom

At Cox Road, the project corridor departs from the existing 115-kV power line corridor and runs generally south to the existing Rob Roy Substation on Freedom Boulevard. Freedom Boulevard is an arterial roadway. This portion of the project corridor parallels several roadways, overbuilding existing single wooden distribution poles averaging approximately 39 feet in height. Mature trees and shrubs line much of the roadside. The general topography in this section of the corridor includes rolling hills. The residential density increases as the project corridor approaches the communities of Rio Del Mar and Aptos. Existing wood poles and overhead conductors from the existing distribution line are visible features within the landscape. Rob Roy Substation is located approximately 150 feet west of Freedom Boulevard and is screened from view from the boulevard and from adjacent residences by dense vegetation. Several wood poles are visible along the side of Freedom Boulevard. Aptos High School is located fewer than 1,000 feet to the east with views to the substation from the high school screened by topography and vegetation. Primary viewers in the Cox-Freedom Landscape Unit are motorists on Freedom Boulevard and local roadways.

Representative photos are shown in Figure 3.1-6. Residences are set back from the roadway (Photos #20 and #21), and dense roadside vegetation is typical. Vegetation screens views from homes toward these features in some cases; in other cases residential views are unobstructed (Photos #21, #22 and #24). Power line infrastructure is a common prominent element to the landscape as most neighborhoods include above-ground distribution systems.

Figure 3.1-6: Cox-Freedom Representative Photos (Photos #19 through #24)



Photo #19: Looking southeast down Cox road toward the intersection with Day Valley Road **(KOP #6)**.



Photo #20: Day Valley Road near Cox Road looking east.



Photo #21: McDonald Road near Freedom Boulevard looking north.



Photo #22: Freedom Boulevard near McDonald Road looking northeast **(KOP #7)**.



Photo #23: Looking southwest along Freedom Boulevard near Shadowmere Way **(KOP#8)**.



Photo #24: Freedom Boulevard near Rob Roy Substation looking north.

Source: PG&E 2012, PG&E 2013

Scenic Integrity

Scenic integrity relates to the deviations from or alterations to the existing landscape character. Scenic integrity along the entire project corridor is moderate because of the existing

transmission and distribution lines currently in the project corridor and the wide variety of landscape alterations, including fences, homes, and roads, and management activities surrounding them,.

Viewer Sensitivity

Viewer sensitivity is a measure of public concern for changes to scenic quality. The number 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. The viewer sensitivity of motorists, residents, and recreationalists are discussed below.

Motorists

Motorists who would view the proposed project include local residents, agricultural workers, day workers, and light commercial vehicle drivers. The number of viewers along these roadways would be low to moderate throughout the week, with higher volumes during commute hours. With the exceptions of Amesti Road and Corralitos Road, which are County-designated Rural Scenic Roads (see section below), motorist sensitivity is low to moderate because of the limited views of the project corridor with unaltered scenic value, of the relatively modest number of viewers that use these roads, and the short duration that each motorist is able to view segments (a few seconds each) of the project corridor. Motorist sensitivity on Amesti Road and Corralitos Road is considered high because of the County designation as Rural Scenic Roads.

Residents and Recreationists

Recreationists using Pinto Lake County Park would view portions of the proposed project and have a moderate sensitivity. This sensitivity is moderate for residents and recreationalists because existing electrical infrastructure is in place and already in view, and the reinforcement project would not be adding entirely new elements to those views, although there would be incremental increases in the number of lines and height of the poles.

Scenic Highways

California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The State Scenic Highway System includes highways eligible for designation as scenic highways in the future and those already designated as such. State Route 1 and State Route 152 are eligible for state scenic highway designation and are located approximately 0.65 miles and 1.25 miles from the project corridor, respectively. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives the designation. Such action has not been taken by Santa Cruz County.

The Conservation and Open Space Element of the Santa Cruz County General Plan identifies scenic roads within the County valued for their vistas and states the public vistas from these roads shall be afforded the highest level of protection (Policy LCP 5.10.10). Within the project

corridor, Amesti Road and Corralitos Road are designated Rural Scenic Roads. Specific policies protecting scenic vistas and that relate to the project include:

- *Policy 5.10.11 Development Visible from Rural Scenic Roads (LCP)*: In the viewsheds of rural scenic roads, require new discretionary development, including development envelopes in proposed land divisions, to be sited out of public view, obscured by natural landforms and/or existing vegetation. Where proposed structures on existing lots are unavoidably visible from scenic roads, identify those visual qualities worthy of protection and require the siting, architectural design and landscaping to mitigate the impacts on those visual qualities.
- *Policy 5.10.13 Landscaping Requirements (LCP)*: All grading and land disturbance projects visible from scenic roads shall conform to the following visual mitigation conditions:
  a. Blend contours of the finished surface with the adjacent natural terrain and landscape to achieve a smooth transition and natural appearance; and
  b. Incorporate only characteristic or indigenous plant species appropriate for the area.
- *Policy 5.10.23 Transmission Lines and Facilities (LCP)*: Require transmission line rights-of-way and facilities to be reviewed in accordance with the zoning ordinance to minimize impacts on significant public vistas; especially in scenic rural areas, and to avoid locations which are on or near sensitive habitat, recreational, or archaeological resources, whenever feasible.
- *Policy 5.10.25 Access Roads for Transmission Lines (LCP)*: Require access roads for transmission line construction and maintenance within scenic corridors to be designed and constructed to parallel the contour of the land and to minimize grading and landscape alterations.

Scenic Vistas

A scenic vista is a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality. There are no specifically developed or designated scenic vista points in the project corridor. Amesti Road and Corralitos Road are valued for their scenic vistas in the County of Santa Cruz General Plan. Policies applicable to the project that relate to views from these roads were described previously.

Light and Glare

Existing nighttime lighting in the vicinity of the project corridor includes localized lighting sources associated with residences, agricultural facilities, and public facilities, such as schools. Some roadway lighting, including cobra-head fixtures, is located along the eastern end of the Northern Alignment in the more densely settled neighborhood near Green Valley Road. Roadway lighting is also found at intersections along Freedom Boulevard near Rob Roy Substation. A limited amount of safety and security lighting is located at Rob Roy Substation.

3.1.2 Applicant Proposed Measures

PG&E proposed to implement measures that would reduce environmental impacts. The Applicant Proposed Measures (APM) are considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include these APMs as part of the proposed project, and PG&E would have to adhere to the APMs as well as any identified mitigation measures. The APMs related to aesthetics are shown in Table 3.1-3.

Table 3.1-3: Applicant Proposed Measures for Aesthetics Impacts

APM Number	Requirements
AES-02	Non-reflective 115 kV conductor (non-specular conductors) and insulators will be installed along the Northern Alignment and Cox-Freedom Segment to minimize the reflectivity and general visibility of the line.
AES-03	New and replacement tubular steel poles to be installed will be manufactured steel that will come pre-weathered with a rust color.
AES-04	The new lighting at Rob Roy Substation will use non-glare or hooded fixtures, and will be directed to reduce spillover into areas outside the substation site and minimize the visibility of lighting from off-site locations.

3.1.3 Environmental Impacts and Assessment

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) Have a substantial adverse effect on a scenic vista?

A scenic vista is defined, for the purposes of this analysis, as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality.

The Conservation and Open Space Element of the Santa Cruz County General Plan identifies scenic roads within the County that are valued for their vistas (Policy LCP 5.10.10). Amesti Road and Corralitos Road are designated Rural Scenic Roads. The project corridor crosses Amesti Road (see Photo #8) and Corralitos Road (see Photo #9). Views from these roads are considered scenic vistas for this analysis. The proposed project would only be visible in the vicinity of where the power line crosses these roads, as the topography and vegetation along these roads shield the line from view from other locations along the roads.

The City of Santa Cruz General Plan policies reflect a need to protect public views as follows (City of Santa Cruz 2012):

> CD1.2 Ensure that the scale, bulk, and setbacks of new development preserve important public scenic views and vistas.
>
> > CD1.2.1 Develop complimentary siting, scale, landscaping, and other design guidelines to protect important public views and ensure that development is compatible with the character of the area.

Construction

One proposed contractor construction yard is located adjacent to Amesti Road southwest of Pinto Lake County Park (between Paraiso Drive and Hawthorne Avenue). Construction staging equipment, including office supply trailers and temporary security fencing, would be visible to motorists along Amesti Road for approximately 750 feet in either direction, which, at a speed of 25 mph would be for approximately 20 seconds. Due to the flat topography of the staging area, equipment located closest to the road would be most visible for the 15-18 months or less of construction. The adjacent areas include residential development and farms.

The power line also crosses another section of Amesti Road, north of Harrison Way, just north of where Amesti Road is closed to through traffic. Guard structure work areas would be located on either side of Amesti Road where the proposed power line alignment crosses the road in this section. Construction of a new TSP would also be visible off of the road. The guard structure and construction equipment would be visible to motorists during the pulling of power lines in that area and during construction of the pole, which would likely last for a few weeks or less. The section of Amesti Road immediately south of the crossing is closed, and therefore traffic is very limited in this area. Even if the road were to open, due to topography and dense vegetation to the south of the crossing area, the guard structures and equipment associated with pole replacement would only be visible to motorists for approximately 10 seconds or less during the few weeks of construction in this area. Impacts would be less than significant.

The project alignment crosses Corralitos Road perpendicularly. A pole work area is located just adjacent to and just west of Corralitos Road and another is approximately 150 feet east of Corralitos Road. Work may be readily visible from Corralitos Road for a half mile in either direction because the area is mostly open farmland with low crops. At average traveling speeds of 45-55 miles an hour along this stretch, the work sites would be visible for approximately 30-38 seconds. Equipment associated with pole replacement would be visible. This work would

only be visible, however, for a few weeks in this location. Views in this area include active farming operations and equipment. Construction equipment would not be out of character with the types of machinery and man-made features currently visible. No other areas of construction would be readily visible along Corralitos Road. Impacts to views from Corralitos Road would be less than significant.

Operation and Maintenance

A new TSP would be visible from Amesti Road at the Amesti Road crossing, north of Harrison Way. Tree removal may also occur in the viewshed of Amesti Road. While viewer sensitivity is high because Amesti Road is a scenic route, Amesti Road is closed to through traffic just after the location where the project corridor crosses the road, and as such it is only viewed by a limited number of motorists, and only when traveling south. Even if the road were to open, the pole would only be visible to motorists traveling in either direction for approximately 10 seconds or less. The pole is in the same alignment as the existing infrastructure and is similar in appearance to a viewer. The pole, although it would be taller than existing poles (on average 31 feet taller) it would not obstruct views, due to its nature as a narrow structure. The proposed project includes APMs AES-02 and AES-03, which require the use of non-reflective conductors and Corten steel poles that would be a rust color, which would fit in with the rural character of the area and would look similar in composition to existing poles. The TSP would be consistent with the existing visual character, which includes existing power line facilities, homes, unpaved roads, agricultural uses, and other manmade structures. Permanent impacts to vistas from Amesti Road would therefore be less than significant.

A new TSP would be visible at the crossing of Corralitos Road. Figure 3.1-7 presents the existing view from Corralitos Road and a simulation of the proposed crossing with the replacement TSP. Viewer sensitivity is high based on the designation of Corralitos Road as a scenic road. Traveling in either direction, views of the project corridor traveling across the Corralitos Creek valley from Corralitos Road are restricted by orchards and roadside vegetation until approximately 0.5 miles from where the project corridor crosses Corralitos Road. Traveling at speeds of 45 to 55 miles per hour represents an approximately 30 to 38 seconds exposure to the power line view. There would, however, be no discernible change to patterns or textures from the proposed project facilities. The proposed project also includes APMs AES-02 and AES-03, which require the use of non-reflective conductors and Corten steel poles that would be a rust color, which would fit in with the rural nature and character of the area. The scale, form, and color of the power line poles and non-specular circuits would vary slightly from existing power lines and would be slightly more visible against the skyline; however, due to the nature of a power line and pole as narrow structures, views from Corralitos Road would not be obstructed.

Figure 3.1-7: KOP #3— View from Corralitos Road near Skylark Lane Looking North

Before Proposed Project



After Proposed Project (Visual Simulation)



Location, Distance from Project (feet): Corralitos Road, 500

Orientation: Looking north from Corralitos Road near Skylark Lane and near Bradley Elementary School

Project Elements: Replacement of wood poles with two new TSPs

Description: Corralitos Road is a County scenic road. From this vantage point, the existing power line and a three-pole wood structure cross Corralitos Road approximately 500 feet away. Land uses are predominantly agricultural with some rural residential development.

Note: The simulation should be viewed from a distance of approximately 12 inches in order to receive an accurate impression of the proposed project's scale in relationship to the surrounding landscape.

Change in contrast levels (*i.e.*, the variation in landscape features including both natural and manmade elements) due to the proposed project would not differ substantially from the existing levels because the new power line configuration and characteristics would be similar to the existing power line, as new poles would look like wood and have similar features (*e.g.*, cross-arms, conductor). The proposed project would not substantially alter the existing composition and character of the vistas from Corralitos Road because existing poles and overhead lines are established elements along the road and in the overall landscape setting. Impacts to scenic vistas would therefore be less than significant.

B) 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 from which the project is visible. There would be no impact to scenic resources associated with state-designated scenic highways.

C) Substantially degrade the existing visual character or quality of the site and its surroundings?

Construction
Impacts from construction would be associated with ground disturbance and the presence of construction equipment and materials. Construction activities that may be visible include:

- Removal of vegetation, including trees, at the proposed substation expansion area, around power pole locations, access roads, 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 facilities, digging trenches, auguring holes for foundations, transporting and lifting TSPs, transporting and installing wood poles, hauling concrete, water trucks spraying water to control dust, and assorted construction vehicles
- Temporary construction-limit fencing

Motorists, visitors to Pinto Lake Park, and nearby residents along the project corridor would experience temporary changes in the scenic quality of the area from construction activities related to the power line construction. The Rob Roy Substation expansion area cannot be seen from Freedom Boulevard, however, because of topography and roadside vegetation. Construction, including the removal of trees, would not make the substation visible to the public.

Much of the Northern Alignment is located in agricultural areas. Agricultural operations in these areas use equipment that is similar to construction equipment. Additionally, construction

would occur along the existing transmission corridor, public visibility would be limited, and construction would be for a limited period of time (approximately 15-18 months total but for only a few weeks at each pole location).

Many areas along the Cox-Freedom Segment are screened by vegetation or topography and man-made structures. Construction equipment and activities may be visible to motorists or pedestrians for up to a few minutes at each pole location. Construction activities would be temporary: they would be at most 15-18 months and would likely only occur for a few weeks at any one pole location. Because construction would be screened from views, would use construction equipment similar to that used in agriculture, and would be conducted only for a limited period of time (a few weeks at single pole location); impacts to the visual character of the area from construction would be less than significant.

Operations and Maintenance

Overview

The proposed project would introduce additional or replacement TSPs, wood poles, and new overhead conductors to the landscape. The new power poles would be taller, as described in Table 3.1-4, than the existing structures, and additional conductor would be added to the current alignment. Refer to Table 2.5-1 in Chapter 2: Project Description for the number of pole

Table 3.1-4: Summary of Existing and New Pole Structure Types by Landscape Unit

Landscape Unit	Typical Type of Existing Pole Structure	Average Height of Existing Pole Structures (feet)	Typical Type of New Pole Structure	Average Height of New Pole Structure (feet)	Average Height Change (feet)
Green Valley Substation	Single pole with asymmetric cross arms	61	Corten Steel TSP	87	26
Pinto Lake Park	Single pole	60	Corten Steel TSP	95	35
Corralitos	Single pole with asymmetric cross arms Single pole	60	Corten Steel TSP	91	31
Day Valley	Double and triple pole structures	49	Corten Steel TSP	86	37
Cox-Freedom	Wood distribution poles	39	Wood transmission poles	89	50

Refer to Table 2.5-1 in Chapter 2: Project Description for the number of poles added, removed, and retained.

replacements. The proposed project would also involve vegetation removal, including removal of trees. These activities would result in incremental changes to the visual quality of the area. A detailed discussion of impacts by landscape unit is presented here.

Northern Alignment

Green Valley Landscape Unit. The topography in this landscape unit is relatively flat with mostly sparse vegetative cover. Single-family homes and nearby agricultural fields characterize this unit. The existing single circuit includes three power lines on wooden poles averaging 61 feet tall. The existing power line is a prominent utility feature within the landscape.

One simulation was prepared to represent the visual changes within this landscape unit. Figure 3.1-8 (KOP #1) presents the existing view at Arroyo Drive, a residential area north of the Green Valley Substation, and a simulation of what the area would look like after project construction. Public views of the proposed project would be primarily visible to motorists. Views of the proposed project along Arroyo Drive and on nearby parallel streets including Dalton Lane and Quinta would last approximately 25 seconds if traveling at speeds of 30 to 35 miles per hour. The alignment may also be visible to some residents in private homes and to pedestrians walking through the neighborhood.

Minor changes to existing patterns and textures created by the proposed project facilities would be discernible because of the addition of another circuit and new, taller poles. The form and color of the poles and non-specular circuits would vary slightly from existing power lines. The height and therefore scale would also vary. New TSPs with new circuit would be on average approximately 26 feet taller than the existing wooden poles in this section of the alignment. AES-03 requires the use of pre-weathered Corten steel poles, which have a similar appearance to the existing wooden poles. The new TSPs would present a more unified visual appearance than the existing poles due to the symmetrical cross arms of the new poles, whereas the current poles have asymmetrical upper cross arms. Change in contrast levels due to the proposed project would not differ substantially from the existing power line because the new power line configuration and characteristics would be similar to the existing power line, albeit taller with 3 more rows of power lines in the new circuit. The increase in height and number of circuits would thus represent an incremental change, that is, a minor change beyond the impact of the existing poles and power lines, which are readily visible above residential areas and tree lines. The new poles and lines; however, would not change the character of the area, because the area already includes transmission infrastructure as part of the visual landscape. Due to the nature of power poles and lines as narrow structures, views would not be obstructed by the taller structures. The greater height of the power poles and lines may also make the infrastructure less visible to some private viewers because the pole tops and conductor may be out of the line of sight. The impact on visual character and quality in this landscape unit would be less than significant.

Pinto Lake Landscape Unit. The primary feature within this landscape unit is Pinto Lake Park. One visual simulation has been prepared for this landscape unit. Figure 3.1-9 (KOP #2) presents the view of the existing transmission facilities at Pinto Lake County Park and a simulation of

Figure 3.1-8: KOP #1—View from Arroyo Drive at Mark Avenue Looking Southwest

Before Proposed Project



After Proposed Project (Visual Simulation)



Location, Distance from Project (feet): Arroyo Drive, 250

Orientation: Looking southwest along Arroyo Drive at Mark Avenue toward existing single-circuit 115 kV wood pole power lines with service line underbuilds

Project Elements: Installation of three new TSPs and topping of three wood poles; replacement of three existing wood poles with two new TSPs

Description: The area is a residential area north of the Green Valley Substation. Views to the upper potions of the proposed power and service lines along Arroyo Drive are unrestricted by residential development. Local motorists and residents will have foreground views of power line poles and circuits.

Note: The simulation should be viewed from a distance of approximately 12 inches in order to receive an accurate impression of the proposed project's scale in relationship to the surrounding landscape.

Figure 3.1-9: KOP #2—View from Pinto Lake County Park Looking East

Before Proposed Project



After Proposed Project (Visual Simulation)



Location, Distance from Project (feet): Pinto Lake County Park, 350

Orientation: Looking east from within Pinto Lake County Park along the existing single-circuit 115 kV wood pole power lines

Project Elements: Replacement of several wood poles with new TSPs

Description: The location is within the Pinto Lake County Park's popular day use area. Park facilities and use areas near the ROW have open views to the power line. Mature trees screen views of the line from more distant locations in the park.

Note: The simulation should be viewed from a distance of approximately 12 inches in order to receive an accurate impression of the proposed project's scale in relationship to the surrounding landscape.

what the area would look like after project construction. Viewer sensitivity is moderate within Pinto Lake County Park because park users are typically looking for a somewhat natural setting. Park visitors experience views of the existing power line for an extended period of time. The new power line and replacement TSPs would also be readily visible to park visitors. The form and color of the new power line poles and non-specular circuits would vary slightly from existing power lines: they would be in the same location as the existing line and would be a rust color, looking similar to wooden poles. The poles would be up to on average approximately 35 feet taller and the line would include one more circuit with three more total visible power lines. Change in contrast levels due to the proposed project would not differ substantially from the existing power line because the new power line configuration and characteristics would be similar to the existing power line, albeit taller by 35 feet on average with 3 more rows of power lines. The increase in pole height and number of circuits would thus represent an incremental change, that is, a minor change beyond the existing impact of the existing poles and power lines. The new poles and lines; however, would not change the visual character of the area, because the area already includes transmission infrastructure as part of the visual landscape. The visual quality of the area that arises from the visual contrast of park trees and natural areas in the foreground and views of distant hills in the background would not be significantly changed by the project. Due to the nature of power poles and lines as narrow structures, views would not be obstructed by the new poles and lines. The impact on visual character and quality in this landscape unit would be less than significant.

Corralitos Landscape Unit. The Corralitos landscape unit includes a rural residential area with agricultural activities located within gently sloping landscape surrounding Corralitos Creek. One visual simulation was prepared to present the visual analysis for this landscape unit. Figure 3.1-7 (KOP#3) presents the existing view from Corralitos Road and a simulation of the proposed crossing with the replacement TSPs. The discussion of the changes to the area is provided under potential impact A) (scenic vista) in this analysis.

The additional and replacement infrastructure would be consistent with the existing visual landscape, which includes existing utility infrastructure that is readily visible to motorists and residents. Impacts to the visual character and quality in the area would be less than significant.

Pleasant Valley/Day Valley Landscape Unit. This landscape unit is characterized by more hilly topography with denser woody vegetation and residential development. This landscape unit also includes the residential community of Day Valley.

Two simulations have been prepared for this landscape unit. The first is located at Hames Road just west of the Pleasant Valley Road intersection. Figure 3.1-10 (KOP #4) presents the existing view at Hames Road and a simulation of what the area would look like after project construction. Viewer sensitivity for motorists is low along Hames Road. Because of open agricultural fields where the project corridor crosses Hames Road, the motorist's view of the project is only unobstructed for a short distance. The view of the proposed project when traveling at 45 to 55 miles per hour in either direction would last approximately 6 to 8 seconds. Viewer sensitivity for residents viewing the project corridor would be moderate.

Figure 3.1-10: KOP #4—View from Hames Road near Pleasant Valley Road Looking North

Before Proposed Project



After Proposed Project (Visual Simulation)



Location, Distance from Project (feet): Hames Road, 350

Orientation: View looking north from Hames Road just west of the Pleasant Valley Road intersection.

Project Elements: Replacement of three wood poles with three new TSPs

Description: The surrounding land uses are rural residential and agriculture.

Note: The simulation should be viewed from a distance of approximately 12 inches in order to receive an accurate impression of the proposed project's scale in relationship to the surrounding landscape.

Figure 3.1-11 (KOP #5) presents the existing view at Jingle Lane and a simulation of what the area would look like after project construction. The predominant use of the local roads is by residents whose viewer sensitivity is moderate. Viewers along this project corridor segment are limited to the locations where the power line crosses the road because the residences in the area have views that are perpendicular to the project corridor and thus they can only view a limited segment of the line. Views to the project corridor along Jingle Lane are brief, from 6 to 8 seconds at a speed of 25 to 30 miles per hour on the residential street.

A substantial change to existing patterns or textures from the proposed project's facilities would not occur because the new facilities would be located in the same orientation as the existing transmission facilities within this landscape unit. The form and color of the new TSPs and non-specular circuits would vary slightly from the existing single-circuit power line, but would be visually consistent with the fence poles and existing power lines in the foreground. The new TSPs would be more streamlined in appearance as the new line would be placed on a single pole TSP. The existing power lines in this area of the alignment are on two to three pole wooden structures that often extend above the tree line and are very visible. The new poles, however, would be up to 37 feet taller. They would be a similar color, per AES-03, to the existing wooden poles. Non-specular circuits would reduce glare. Change in contrast levels would be low and while the taller poles with more circuits may be more visible from a distance, the narrow footprint of a single pole replacing two to three pole structures would have a positive aesthetic impact. The new poles would also extend beyond tree tops; however, due to the nature of the poles as narrow structures, they would not obstruct views or draw additional attention from the character of the surrounding landscape, which is varied, including trees, open fields, farms, and manmade features in the foreground and some hillside views in the background. The impact on visual character and quality in this landscape unit would be less than significant.

Cox-Freedom Segment

Cox-Freedom Landscape Unit. This landscape unit includes a more dense residential landscape near the communities of Rio Del Mar and Aptos. Existing wood distribution poles and lines are part of the visual landscape. These distribution poles are approximately 39 feet in height through the Cox-Freedom Segment and are single wooden pole designs.

Within this landscape unit, seven new TSPs, averaging 98 feet tall, would be installed. One TSP would be located at the intersection of McDonald Road and Freedom Boulevard in a field to the south of the intersection with McDonald Road. A second 98-foot-tall TSP would be located at the intersection of Day Valley Road and Cox Road to the southeast of the intersection. The pole would be set back 20 feet along a hillslope in a densely wooded area of mature trees, including Monterey pines. A third TSP would be located on Freedom Boulevard near the entrance to the Rob Roy Substation. Four additional TSPs would be located in the vicinity of the Rob Roy Substation. These TSPs at Rob Roy Substation would be approximately 84 feet tall. Across this landscape unit, several existing wood power poles and overhead distribution lines would remain (or be replaced in-kind) and approximately 24 new wood poles up to an average of 89 feet in height would replace 23 existing, approximately 39-foot-tall distribution poles.

Figure 3.1-11: KOP #5—View from Jingle Lane near Day Valley Road Looking Southeast

Before Proposed Project



After Proposed Project (Visual Simulation)



Location, Distance from Project (feet): Jingle Lane, 300

Orientation: Looking southwest from Jingle Lane north of Day Valley Road.

Project Elements: Replacement of five wood poles with five new TSPs

Description: The project corridor is within 110 feet of some residents and crosses numerous local Day Valley roads including Jingle Lane. Double wood poles would be replaced with taller single TSPs. The surrounding land uses are rural residential.

Note: The simulation should be viewed from a distance of approximately 12 inches in order to receive an accurate impression of the proposed project's scale in relationship to the surrounding landscape.

The proposed project would result in a visual change in pattern and scale. Two tall TSPs (over two times the height of existing distribution infrastructure) would be added to this landscape unit within residential areas. The additional four TSPs would be located near the Rob Roy Substation, which is set back from Freedom Boulevard and is not visible to residents or motorists. The approximately 24 new wooden poles within the residential area would be on average, approximately 50 feet taller than existing distribution poles, with three additional power lines in a new transmission circuit visible on these new poles.

Three visual simulations have been prepared for this landscape unit. Figure 3.1-12 (KOP #6) presents the existing view at the intersection of Day Valley Road and Cox Road and a simulation of the proposed TSP and new wood transmission and distribution poles on Cox Road. The new TSP would be partially visible for approximately 1,000 feet heading south on Cox Road, although screened by tall vegetation, and would not be visible while traveling on Day Valley Road because it would be set back within the trees. Approximately 10 residents are located in the immediate vicinity of the pole and may have some views of the new TSP. The new wood transmission poles and transmission line in this area would be visible to several residents in the area that currently view the existing distribution alignment. Private views of the new transmission line are partially screened by topography, roadside vegetation, and residential landscaping and development. Due to the height of the new poles, the top of the poles where the new transmission conductor is located may be outside of the field of view from private residences immediately adjacent to the road, depending upon the height of the residence.

Figure 3.1-13 (KOP #7) presents the existing view at the intersection of Freedom Boulevard and McDonald Road and a simulation of the proposed crossing with the replacement TSP. Freedom Boulevard is an area arterial; therefore, viewer sensitivity is moderate. The motorist's view to the intersection with the new TSP (McDonald Road) is approximately 4 to 6 seconds in duration if traveling at a speed of 45 to 55 miles per hour. The view is limited by road direction, roadside vegetation, and residential landscaping. The new TSP would be readily evident to nearby residents and motorists driving by. The height and scale of the pole would be greater than the existing infrastructure within this landscape unit, and therefore more visually obtrusive. Motorists' views of the TSP, however, would be limited by the amount of time in the area. Views would also be limited because the TSP would be set back at least 20 feet from the road with a large portion of the pole screed by the trees that are located on the east side of the area. A limited number of residences (including an estimated 10 residences in the immediate vicinity) would have limited views of the TSP, which would be visible above existing trees.

Figure 3.1-14 (KOP #8) presents the existing view along Freedom Boulevard and a simulation of a typical new single circuit transmission pole and conductor along this segment. Freedom Boulevard is an arterial with heavy vegetation screening between residences and the road, although some areas provide direct views onto the roadway. The new, taller poles and conductor would be visible to motorists along the same alignment as existing distribution infrastructure. Travelers moving to the north along Freedom Boulevard from the Rob Roy Substation parallel the project corridor for approximately 0.75 mile. This represents an

Figure 3.1-12: KOP #6—View at Intersection of Day Valley Road and Cox Road

Before Proposed Project



After Proposed Project (Visual Simulation)



Location, Distance from Project (feet): Cox Road (15 feet)

Orientation: Looking southeast down Cox road toward the intersection with Day Valley Road

Project Elements: One new TSP, a new wooden transmission pole and a new distribution pole

Description: The project corridor leaves Day Valley Road and turns onto Cox Road. The predominant surrounding land use is rural residential.

Note: The simulation should be viewed from a distance of approximately 12 inches in order to receive an accurate impression of the proposed project's scale in relationship to the surrounding landscape.

Figure 3.1-13: KOP #7—View at Intersection of Freedom Boulevard and McDonald Road

Before Proposed Project



After Proposed Project (Visual Simulation)



Location, Distance from Project (feet): Freedom Boulevard, 250 ***Orientation:*** Looking north from Freedom Boulevard south of intersection with McDonald Road ***Project Elements:*** Installation of one new TSP	***Description:*** The project corridor leaves Freedom Boulevard and travels along McDonald Road. The predominant surrounding land use is rural residential.

Note: The simulation should be viewed from a distance of approximately 12 inches in order to receive an accurate impression of the proposed project's scale in relationship to the surrounding landscape.

Figure 3.1-14: KOP #8—View along Freedom Boulevard

Before Proposed Project



After Proposed Project (Visual Simulation)



Location, Distance from Project (feet): Freedom Boulevard, 25 ***Orientation:*** Looking southwest along Freedom Boulevard near Shadowmere Way.	***Project Elements:*** Installation of new wooden poles and single circuit conductor. ***Description:*** The project travels along Freedom Boulevard between McDonald Road and the substation. The predominant surrounding land use is rural residential.

Note: The simulation should be viewed from a distance of approximately 12 inches in order to receive an accurate impression of the proposed project's scale in relationship to the surrounding landscape.

approximately 45 second to 1 minute view to the proposed transmission line when traveling at a speed of 45 to 55 miles per hour. The poles extend above the trees and may be partially visible to surrounding residents and private viewers; however, these views would be screened due to the surrounding heavy vegetation, such that the number of poles visible to any one resident would be limited. The trees, vegetation, and other features of the area provide contrast in these views.

The increase in pole height and the new transmission circuit across the Cox-Freedom Landscape Unit would represent an incremental change, that is, a change in height and number of lines, beyond the impact of the existing poles and distribution lines. The new poles and lines; however, would not change the visual character of the area, because the area already includes electrical infrastructure as part of the visual landscape. The visual character of the area that arises from the visual contrast of varied vegetation, rolling hills, and natural and manmade features in the foreground and views of vegetative rolling topography and rural residential development in the background would remain intact. The transmission lines are just one part of the varied landscape and the contrast reduces emphasis on the proposed project within the views. Due to the nature of power poles and lines as narrow structures, where the poles and line may be visible to additional viewers due to height increase above tree lines, overall views would not be obstructed. These types of transmission facilities, including wood transmission poles, are a common and accepted visual component of moderate density residential areas in the region (such as the existing single circuit transmission line in the Day Valley area). The impact on visual character and quality in this landscape unit would be less than significant.

Changes at the Rob Roy Substation

The substation is completely visually shielded from drivers on Freedom Boulevard and from nearby residences by vegetation and topography. Expansion of the substation and installation of new TSPs would not be visible to these observers. Impacts to visual character of the area would be less than significant.

Vegetation Clearing and Tree Removal

Cleared Areas. The proposed project would require maintaining permanent clearance of vegetation in certain areas. PG&E would maintain an approximately 30-foot by 15-foot work space surrounding all TSPs and wood poles clear of vegetation and other obstructions for inspection and maintenance purposes. These new cleared areas would be substantially similar in size and nature, however, to areas currently kept clear around existing poles for maintenance and inspection purposes. New cleared areas would likely overlap with existing cleared areas for poles because most new poles would be placed within approximately 20 feet of existing poles, such that the location and visual character of the new cleared areas would be similar to the existing cleared areas. Cleared areas around removed poles that are no longer needed for inspection and maintenance of new or retained poles would be allowed to revegetate naturally. The difference in quantity and location of cleared areas between the existing pole maintenance areas and the planned pole maintenance areas would not be substantially different. There would be no significant changes to the visual character or quality of the area based on

vegetation clearing for poles. Impacts to the visual character and quality would be less than significant.

Trimmed Vegetation. Maintenance of the proposed project would involve keeping some vegetation, including trees, trimmed to maintain the required amount of clearance around the power lines and other project components. Vegetation trimming is currently performed for the existing power line and distribution lines; the new configuration may require additional trimming or trimming in additional locations due to greater clearance requirements for the 115-kV circuit. The additional trimming needed would be minor and substantially similar (*e.g.*, removal of overhanging limbs of the same type of vegetation, using the same methods) to vegetation management activities associated with the current alignment and thus would not substantially change the visual character of the area. The project corridor currently includes a mix of wooded, agricultural, and residential areas. Tree trimming would not noticeably change the composition of the existing visual landscape because it would only encompass areas surrounding the transmission line and would not result in clear cuts or significant changes to vegetation patterns. Impacts would be less than significant.

Removed Trees. Up to 165 trees would be permanently removed in the project study area to facilitate additional required clearance of the project's expanded ROW. The most concentrated tree removal would occur along the Cox-Freedom Segment, where 61 percent of the approximately 165 trees would be removed. The remaining 39 percent of the trees would be removed along the Northern Alignment. Some trees would also be removed to facilitate expansion of the Rob Roy Substation, which would not be visible to the public. The trees removed range from 20 to 100 feet in height and from 5 to 85 inches in diameter at breast height. A little less than half of the trees are non-native trees.

The project corridor contains varying densities of trees, with areas slated for tree removal containing dense vegetation in some places. Mitigation Measure Biology-2 would require revegetation and re-contouring of work areas (*e.g.*, areas from which trees are removed). Oaks and Monterey Pines would be replaced per Mitigation Measure Biology-6; however, it is important to note that trees would not be replaced in the same locations where they are removed. Non-native and common tree species would not be replaced.

The entire project corridor is not currently vegetated with dense trees, but instead, tree density varies. Tree removal would primarily be limited to the edges of existing open areas that are part of the current alignment's right-of-way. The right-of-way would need to be expanded in some locations (see Table 2.4-1 in the Project Description), but not by more than 10 feet. The open area around the transmission line, therefore, may widen by 10 feet as part of the project. Given the scale of surrounding vegetation, this minor change in width of the open area around the poles and transmission line would not be readily discernible. Tree removal would not substantially change the existing character of the corridors because it would not substantially change the existing pattern of tree density in the area. Impacts would be less than significant.

Tree removal and trimming may make poles or portions of poles more visible to motorists and residents; however, the impacts to visual character would not change substantially for the reasons previously described. Tree removal and trimming would be limited and would not substantially expand the viewing period of poles.

Maintenance activities for the power line would be similar in scope to existing operation and maintenance activities, and would continue to be performed on above-grade structures. Any maintenance-related activities would generally occur within the existing ROW, in areas that are currently subject to maintenance. Impacts would be less than significant.

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

Construction

No nighttime construction requiring lighting would be performed during project construction. Therefore, there would be no impact.

Operation and Maintenance

The project would use non-reflective 115-kV conductors and insulators and Corten steel TSPs that have a non-reflective finish. Due to the use of non-reflective finishes, the potential for glare would be reduced and impacts would be less than significant.

The proposed project may include new nighttime lighting on some new structures at the existing Rob Roy substation that would be operated only as needed for safety and security. The additional lighting would represent a minor incremental change to existing nighttime lighting conditions at the substation. Implementation of APM AES-04 would reduce potential impacts from nighttime lighting by reducing the glare and spillover of the newly installed lighting. The incremental effects due to the increased lighting would be minor and the impact would be less than significant.

3.2 AGRICULTURE AND FORESTRY RESOURCES

3.2.1 Environmental Setting

Agriculture

Definition and Designation of Agricultural Lands

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 corridor includes lands designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Lands, all of which are generally referred to as Farmland (Figure 3.2-1). Definitions of the designations are provided in Tables 3.2-1. Table 3.2-2 lists the proposed project components and project corridor distances that pass through each FMMP Farmland category.

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 (CDC 2012a). Several parcels within the project study area have current Williamson Act contracts, as shown on Figure 3.2-1. The state delegates authority to local officials to determine and regulate the permitted land uses on parcels under Williamson Act Contracts. Parcels under Williamson Act Contracts

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 4 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 4 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 4 years prior to the mapping date.
Farmland of Local Importance	Land of importance to the local agricultural economy as determined by the County board of supervisors and a local advisory committee. In Santa Cruz County, this land is used for Christmas tree farms and nurseries, and does not meet the definition for Prime, Statewide, or Unique.
Grazing Land	Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Source: CDC 2012b

Figure 3.2-1: FMMP Land Classifications and Williamson Act Contract Lands

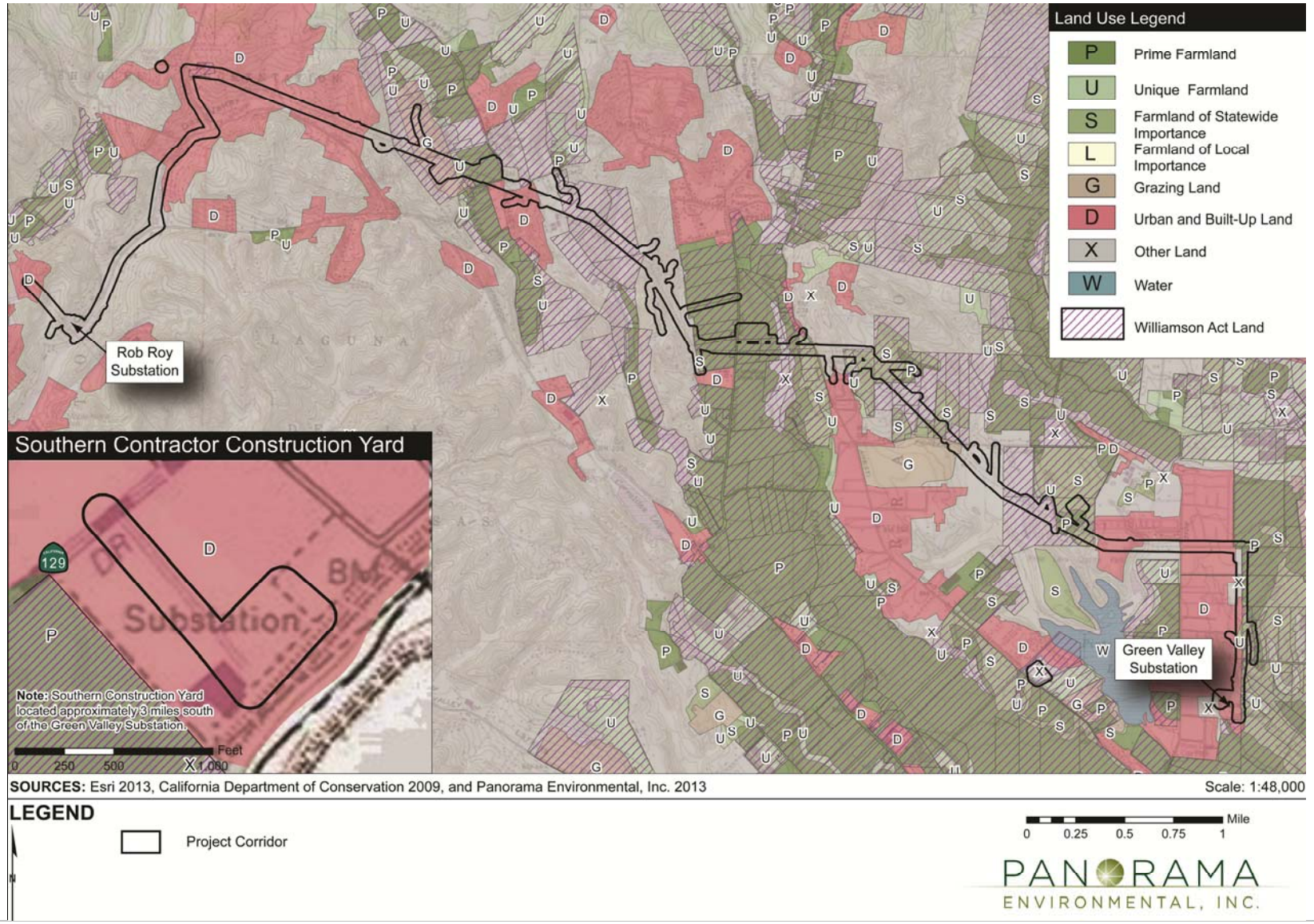


Table 3.2-2: Lengths of Project Corridor that Pass through Designated Farmland

Designated Farmland Type	Northern Alignment		Cox-Freedom Segment		Total Distance	
	Feet	Miles	Feet	Miles	Feet	Miles
FMMP Designated Farmland[1]						
Prime Farmland (P)	5,310	1.01	—	—	5,310	1.01
Unique Farmland (U)	905	0.17	—	—	905	0.17
Farmland of Statewide Importance (S)	3,371	0.64	—	—	3,371	0.64
Farmland of Local Importance (L)	—	—	—	—	—	—
Grazing Land (G)	1,523	0.29	—	—	1,523	0.29
Total	11,109	2.11	—	—	11,109	2.11
Williamson Act Contract Lands						
Williamson Act Land	17,384	3.29	—	—	17,384	3.29
Santa Cruz County Zoning Ordinance Land Designations[1]						
Zoning—Agriculture	1,885	0.36	781	0.15	2,666	0.5
Zoning—Commercial Agriculture	17,098	3.24	—	—	17,098	3.24
Zoning—Residential Agriculture	10,503	1.99	8,421	1.59	18,924	3.58
Total	**29,486**	**5.59**	**9,202**	**1.74**	**38,688**	**7.33**

Note:

[1] Agricultural land classifications identified in the FMMP and Santa Cruz County Zoning Ordinance overlap.

Sources: CDC 2009a, CDC 2009b, Santa Cruz County 1994, PG&E 2012a

in Santa Cruz County are subject to the zoning regulations contained in the Santa Cruz County Code; however, California Public Utilities Commission-approved facilities are considered an acceptable use on Williamson Act contract lands, consistent with the requirements of California Government Code sections 51290 *et. seq*. Table 3.2-2 lists the proposed project components and project corridor distances that pass through Williamson Act contract lands.

Agricultural Land in Santa Cruz County

Santa Cruz County was the eighteenth-largest agricultural producer in California in 2007 (USDA 2009). The total gross production value of Santa Cruz County agricultural commodities was $565,740,000 in 2011 (Santa Cruz County 2011). The most valuable crops in the County in 2011 were strawberries, raspberries, flowers, nursery stock plants, and various vegetables (Santa Cruz County 2011). Santa Cruz County has an estimated 24,000 acres of land designated for agricultural use (Land Trust of Santa Cruz County 2012).

Agricultural Lands in the Project Corridor

The project corridor passes through areas designated in the Santa Cruz County Zoning Ordinance as Agricultural Viable, Agricultural Viable with Limitations, and Agricultural Preserve (Santa Cruz County 1994). These zoning categories are shown on Figure 3.2-2. The County considers these land categories viable for agriculture, viable with limitations, or active agricultural areas (Santa Cruz County 1994). Within the project corridor and other areas which surround it, existing agricultural operations primarily include apple orchards, berry orchards, livestock pastures, and row crops (PG&E 2012b).

Forestry Resources

Definition and Designation of Forestry Lands

The California Public Resources Code (PRC) provides definitions of forest land and timberland, which are referenced in the CEQA Guidelines. Forest land is "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits" (Cal. PRC § 12220(g)). Timberland is "land, other than land owned by the federal government and land designated by the [State Board of Forestry and Fire Protection] as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis" (Cal. PRC § 4526).

California Government Code section 51104(g) defines Timberland Production zoned land as "an area which has been zoned pursuant to section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses . . ." (Cal. Gov't Code § 51104(g)).

Forestry Land in Santa Cruz County

Santa Cruz County contains approximately 190,000 acres of forest land and 125,000 acres of timberland (Land Trust of Santa Cruz County 2007). Santa Cruz County produced on average 12,270,000 board feet of timber per year between 1998 and 2007, which is approximately 0.69 percent of the total California average production for the same time (BOE 2009). Santa Cruz County produced 7,731,000 board feet of timber in 2011 with a value of $2,845,000 (Santa Cruz County 2011).

Forestry Land in the Project Corridor

Coast Oak Woodland and Coastal Riparian habitat were identified during vegetation surveys of the project corridor. These communities meet the criteria and definition of forest land under PRC section 12220(g). The project corridor is not located within timberland as it is defined under PRC section 4526. The nearest Timber Production land is located approximately 0.5 miles northwest of the project corridor (shown on Figure 3.2-2).

Figure 3.2-2: County Zoned Agricultural Land and Timber Resources

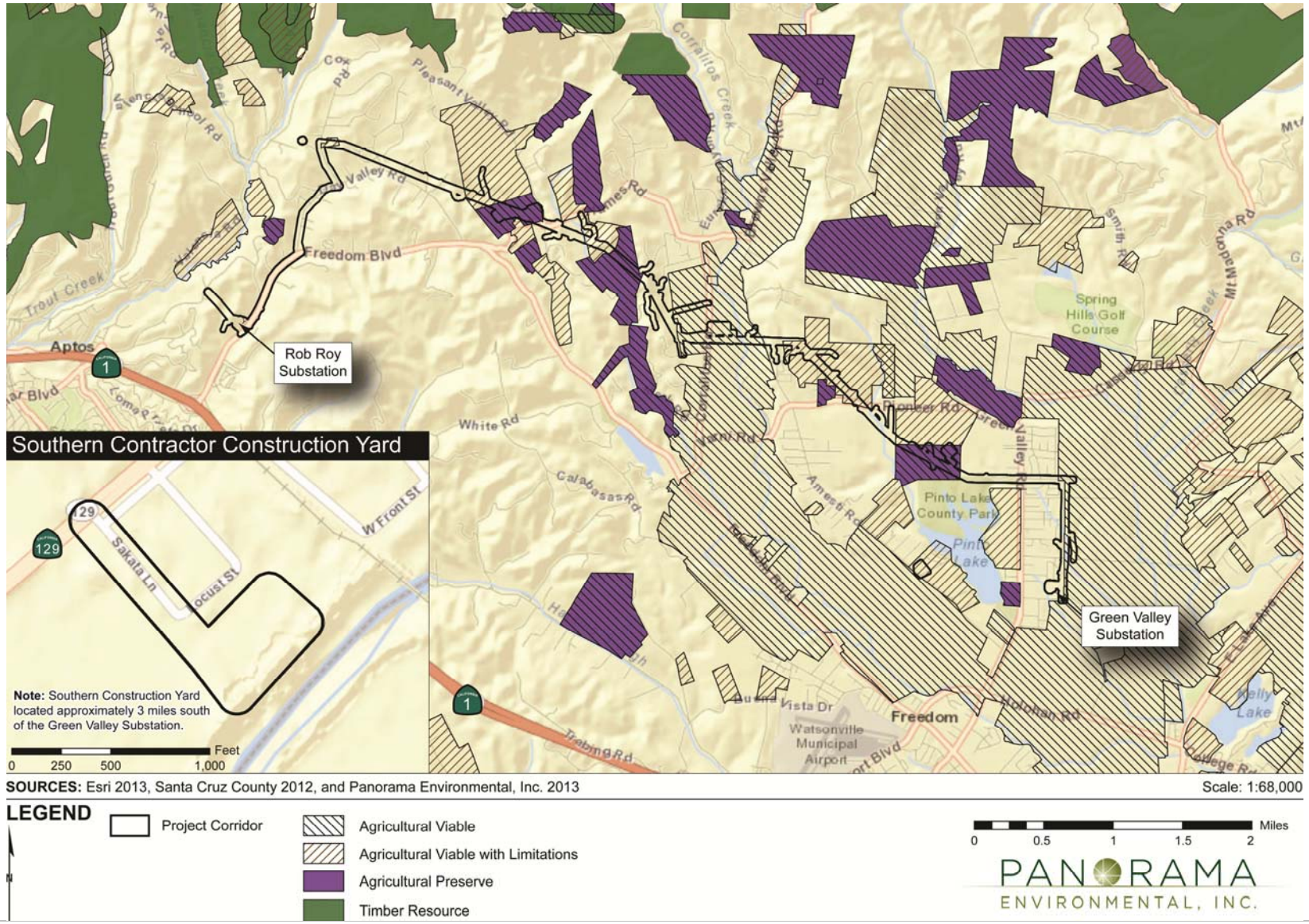


Table 3.2-3 lists the project corridor sections and the lengths that pass through these two habitats. Figures 3.2-1 and 3.2-2 show the portions of the project corridor that pass through these types of forest land.

Table 3.2-3: Lengths of Project Corridor that Pass through Forest Land

Forest Land Type	Northern Alignment		Cox-Freedom Segment		Total Distance	
	Feet	Miles	Feet	Miles	Feet	Miles
Coastal Riparian	1,589	0.3	—	—	1,589	0.3
Coastal Oak Woodland	2,292	0.43	911	0.17	3,203	0.61
Total	**3,881**	**0.73**	**911**	**0.17**	**4,792**	**0.91**

Sources: PG&E 2012c, PG&E 2012a

3.2.2 Environmental Impacts and Assessment

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 in Public Resource Code section 4526), or timberland zoned Timberland Production (as defined in 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

Table 3.2-4 quantifies the amounts of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance (collectively, "Farmlands") that would be temporarily impacted by construction activities. The table addresses maximum effects, which takes into account up to a 10 percent increase in impact area due to moving or adding poles. Up to 22.8 acres of FMMP designated Farmland would be temporarily impacted through use of pole work spaces, staging areas, landing zones, and temporary access roads, all of which would be returned to current land uses once project construction is complete. The temporary loss of crop lands for construction activities would be minimal because the areas impacted are small, and would only be impacted for a short time. Construction of the proposed project could impact access to farmlands and could cause impacts to fencing or other farming activities. Pacific Gas and Electric Company (PG&E) would coordinate with landowners to secure access and accommodate livestock, as well as repair any roads or fences that may be damaged during work activities. Impacts to Farmlands from construction activities would be less than significant.

Table 3.2-4: Temporary and Permanent Impacts to FMMP Designated Farmland

Designated Farmland Type	Northern Alignment (acres)		Cox-Freedom Segment (acres)		Rob Roy Substation (acres)		Total Disturbance (acres)	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Prime Farmland (P)	12.22	0.01	—	—	—	—	12.20	0.01
Unique Farmland (U)	1.41	0.002	—	—	—	—	1.41	0.002
Farmland of Statewide Importance (S)	4.15	0.004	—	—	—	—	4.16	0.004
Farmland of Local Importance (L)	—	—	—	—	—	—	—	—
Grazing Land (G)	2.94	0.001	—	—	—	—	2.93	0.001
Total	**20.72**	**0.02**	**—**	**—**	**—**	**—**	**20.7**	**0.02**
Maximum Impact Due to Potential for Pole Addition or Relocation	**22.8**	**0.02**	**—**	**—**	**—**	**—**	**22.8**	**0.02**

Sources: CDC 2009a, PG&E 2012a

Operation and Maintenance

The proposed project would result in permanent conversion of approximately 0.02 acres of state designated Farmland to nonagricultural use where poles are installed (Table 3.2-4). Removal of an estimated seventeen wooden poles from FMMP Farmland would offset a portion of project

impacts and would recover approximately 75 square feet of Farmland for agricultural use, further minimizing the impacts. The amount of Farmland converted to nonagricultural land is far less than the significance threshold of 10 acres, which is noted in California Government Code section 51222 as the size of a parcel presumed large enough to sustain agricultural use in the case of prime agricultural land.

Operations and maintenance activities would continue as they are currently conducted, and would primarily include inspection and repair of the project power lines, as well as maintenance of Rob Roy Substation within the project corridor and PG&E-owned land. Operations and maintenance activities would have less than significant impacts on Farmlands.

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

Construction

Up to 28.73 acres of Williamson Act contract land would be temporary impacted (shown in Table 3.2-5 and on Figure 3.2-2). Construction activities may temporarily prevent active farming or livestock grazing in these areas through use of pole work spaces, staging areas, landing zones, and access roads. The proposed project would also temporarily impact up to 36.03 acres of land zoned for agricultural use by Santa Cruz County (shown in Table 3.2-5 and on Figure 3.2-2). Temporarily impacted areas would be restored to their current use after construction. Construction impacts to Williamson Act and county-zoned agricultural lands would be less than significant, as they would be temporary and would not impact zoning designations.

Operation and Maintenance

Minimal amounts of Williamson Act contract land (estimated at up to 0.14 acres) and county-zoned agricultural land (estimated at up to 0.52 acres) would be permanently converted to nonagricultural use.

Operations and maintenance activities would continue as they are currently conducted, and would primarily include inspection and repair of the proposed project power lines, as well as maintenance of Rob Roy Substation within the project ROWs and PG&E-owned land. These ongoing operations and maintenance activities would have no impact on Williamson Act or county-zoned agricultural land.

California Government Code section 51238 states “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, the conflict with existing zoning for agricultural use and Williamson Act contracts would be less than significant.

Table 3.2-5: Temporary and Permanent Impacts to Williamson Act and Zoned Agricultural Land

	Northern Alignment (acres)		Cox-Freedom Segment (acres)		Rob Roy Substation (acres)		Total Disturbance to Land Type (acres)	
Designated Farmland Type	**Temporary**	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Permanent**
Williamson Act Contract Lands								
Williamson Act Land	26.12	0.13	—	—	—	—	26.12	0.13
Maximum Impact Due to Potential for Pole Addition or Relocation	**28.73**	**0.14**	**—**	**—**	**—**	**—**	**28.73**	**0.14**
Santa Cruz County Zoning Ordinance Land Designations[1]								
Zoning—Agriculture	1.49	0.0002	0.04	0.0002	—	—	1.53	0.0004
Zoning—Commercial Agriculture	24.79	0.13	—	—	—	—	24.79	0.13
Zoning—Residential Agriculture	5.08	0.21	1.07	0.01	0.28	0.12	6.43	0.34
Total	**31.36**	**0.34**	**1.11**	**0.01**	**0.28**	**0.12**	**32.75**	**0.47**
Maximum Impact Due to Potential for Pole Addition or Relocation[2]	**34.50**	**0.37**	**1.22**	**0.01**	**0.31**	**0.13**	**36.03**	**0.52**

Notes:

[1] Agricultural land classifications identified in the FMMP and Santa Cruz County Zoning Ordinance overlap.

[2] Totals are estimates based on currently proposed work areas. Work areas may be relocated within the project corridor at the time of construction, resulting in minor changes in totals listed here. Changes are not anticipated to be greater than 10 percent.

Sources: CDC 2009b, Santa Cruz County 1994, PG&E 2012a

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 in Public Resource Code section 4526), or timberland zoned Timberland Production (as defined in Government Code section 51104 (g))?

The project corridor is not located on any land zoned for forest land, timberland, or timber production, and would therefore have no impact to these zoning designations.

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

Construction

The proposed project would temporarily impact up to 1.28 acres of land that could be classified as forest land under PRC section 12220(g) (shown in Table 3.2-6). These areas consist of Coastal Oak Woodland and Coastal Riparian habitat. Temporary construction impact areas include pole work spaces, staging areas, landing zones, and temporary access roads. In addition to these work areas in forest land, trees would be trimmed and removed along power line rights-of-way (ROW) as needed. These areas include trees in forest land and non-forest land. Areas where potential tree trimming and removal is anticipated are shown on Figure 2.6-1A and 2.6-1B.

Table 3.2-6: Temporary and Permanent Impacts to Forest Land

Designated Farmland Type	Northern Alignment (acres)		Cox-Freedom Segment (acres)		Rob Roy Substation (acres)		Total Disturbance to Land Type (acres)	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Coastal Riparian	0.000009	—	—	—	—	—	0.000009	—
Coastal Oak Woodland	1.08	0.13	0.08	0.001	—	—	1.16	0.13
Total	**1.08**	**0.13**	**0.08**	**0.001**	**—**	**—**	**1.16**	**0.13**
Maximum Impact Due to Potential for Pole Addition or Relocation[1]	**1.19**	**0.14**	**0.09**	**0.001**	**—**	**—**	**1.28**	**0.14**

Note:

[1] Totals are estimates based on currently proposed work areas. Work areas may be relocated within the project corridor at the time of construction, resulting in minor changes in totals listed here. Changes are not anticipated to be greater than 10 percent.

Sources: PG&E 2012c, PG&E 2012a

Up to 165 trees would need to be removed from work areas in both forest land and non-forest land. The types of trees removed include cedar, Douglas fir, elm, eucalyptus, live oak, maple, Monterey pine, pine, redwood, stone pine, sycamore, and willow. The trees to be removed have height ranges from 20 to 100 feet and range from 5 to 85 inches in diameter at breast height (dbh). The majority of trees to be removed are located along the Cox-Freedom Segment. Three oak trees would be removed at the Rob Roy Substation.

The temporary impacts of up to 1.28 acres of forest land at the described work areas are considered to be less than significant because the impacts would be temporary and dispersed across the project corridor. All temporary work areas in forest land would become available for natural forest growth once construction is complete, except for the 0.14 acres of permanently impacted areas (discussed in Operation and Maintenance, below).

Operation and Maintenance

The proposed project would permanently impact up to 0.14 acres of forest land through the installation of poles within forest land. The impact to forest land is considered to be less than significant because the amount that would be converted to non-forest land would be minor (less than 1 acre), compared to the amount of forest land in the County (190,000 acres), and dispersed across the project corridor.

Operations and maintenance activities would continue as they are currently conducted, and would primarily include inspection and repair of the project power lines, as well as maintenance of Rob Roy Substation within the project ROWs and PG&E-owned land. Trees within project ROWs would be trimmed and potentially removed to maintain safe distances between power lines. Tree maintenance would continue as currently conducted and would therefore have no impact to forest land.

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?

Other than those impacts described above (CEQA checklist sections A, B, and D), the proposed project would not involve changes to the existing environment that would result in the conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use. Once built, the proposed project would not impact agricultural activities or zoning.

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3.3 AIR QUALITY

3.3.1 Environmental Setting

Air Basin

The proposed project is located in Santa Cruz County, California, and is in the North Central Coast Air Basin (NCCAB). The NCCAB is comprised of Monterey, Santa Cruz, and San Benito Counties. The basin lies along the central coast of California and covers an area of 5,159 square miles. In Santa Cruz County, coastal mountains exert a strong influence on atmospheric circulation, which results in generally good air quality (MBUAPCD 2008a).

Climate and Meteorology

Meteorological and climatological conditions influence ambient air quality. The climate of Santa Cruz County is characterized by warm summers and mild winters and is dominated by a semi-permanent high-pressure cell located over the Pacific Ocean. This high-pressure cell maintains clear skies for much of the year. It also drives the dominant onshore circulation and helps create two types of temperature inversions—subsidence and radiation—that contribute to local air quality degradation.

Subsidence inversions occur during warmer months as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the two layers of air represents a temperature inversion that traps pollutants below it. Radiation inversions typically develop on winter nights with low wind speeds when air near the ground cools by radiation, and the aloft air remains warm. A shallow inversion layer that can trap pollutants is formed between these two layers.

The Western Regional Climate Center (WRCC), inaugurated in 1986, is a regional climate center in the United States. The WRCC has provided climatological data for the Watsonville Municipal Airport from July 1998 to December 2008. According to the WRCC summary data, the average maximum temperature is 73.9 degrees Fahrenheit (°F) in September, and the average minimum temperature is 40.0°F in December (WRCC 2008). The normal precipitation in Watsonville is 19.44 inches annually, occurring primarily from December through March. The annual mean wind speed is 4.1 miles per hour (mph). Climatological data for Watsonville are summarized in Table 3.3-1.

Air Quality Standards

Federal

The National Ambient Air Quality Standards (NAAQS) were established by the federal Clean Air Act (CAA) of 1970 and were amended in 1977 and 1990. The NAAQS represent the maximum levels of pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. Seven air pollutants of concern for which the NAAQS have been established are ozone (O_3), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), lead (Pb), particulate matter with an aerodynamic diameter less than or equal to 10 microns

Table 3.3-1: Climatological Data Summary, Watsonville Municipal Airport

Month	Temperature (°F)			Precipitation (inches)	Wind (mph)
	Average Maximum	Average Minimum	Average	Average Monthly	Daily Average Speed
January	59.2	40.1	49.7	3.77	3.4
February	60.9	42.0	51.5	4.42	3.8
March	63.1	43.0	53.1	2.20	3.7
April	64.7	44.3	54.5	1.36	4.9
May	69.4	47.9	58.6	0.45	4.9
June	72.0	50.6	61.3	0.10	5.0
July	72.3	53.1	62.7	0.03	4.7
August	72.4	53.6	63.0	0.02	4.4
September	73.9	52.2	63.0	0.10	4.1
October	71.7	48.3	60.0	0.81	3.6
November	65.5	44.0	54.7	1.89	3.1
December	59.9	40.0	50.0	4.28	3.4
Year	67.1	46.6	56.8	19.44	4.1

Source: WRCC 2008

(PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$).

Table 3.3-2 presents the NAAQS for the criteria air pollutants at different averaging periods. National standards (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual arithmetic mean) are not to be exceeded more than once per year. The ozone standard is attained when the fourth-highest 8-hour concentration measured at each site in one year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms per meter cubed ($\mu g/m^3$) is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. The annual standards should never be exceeded. When an area violates a health-based standard, the CAA requires the area be designated as nonattainment for that pollutant.

State

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA's requirements include annual emission reductions, increased development and use of low emission vehicles, and submittal of air quality attainment plans by air districts.

Table 3.3-2: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m³)	—	—
	8-Hour	0.070 ppm (137 µg/m³)	0.075 ppm (147 µg/m³)	0.075 ppm (147 µg/m³)
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	—
	1-Hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	0.053 ppm (100 µg/m³)
	1-Hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	—
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	0.030 ppm (for certain areas)	—
	24-Hour	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)	—
	3-Hour	—	—	0.5 ppm (1,300 µg/m³)
	1-Hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	—
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m³	—	—
	24-Hour	50 µg/m³	150 µg/m³	150 µg/m³
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m³	15 µg/m³	15 µg/m³
	24-Hour	—	35 µg/m³	35 µg/m³
Sulfates	24-Hour	25 µg/m³	—	—

Table 3.3-2 (*Continued*): National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Lead (Pb)	30-Day Average	1.5 µg/m^3	—	—
	Calendar Quarter	—	1.5 µg/m^3 (for certain areas)	1.5 µg/m^3 (for certain areas)
	Rolling 3-Month Average	---	0.15 µg/m^3	0.15 µg/m^3
Hydrogen Sulfide (H_2S)	1-Hour	0.03 ppm (42 µg/m^3)	—	—
Vinyl Chloride	24-Hour	0.01 ppm (26 µg/m^3)	—	—
Visibility Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer—visibility of ten miles or more due to particles when the relative humidity is less than 70 percent.	—	—

Source: CARB 2012a

The California Air Resources Board (CARB) is the state agency responsible for attaining and maintaining healthy air quality, protecting the public from exposure to toxic air contaminants, and providing innovative approaches for complying with air pollution control rules and regulations in California. CARB developed the California Ambient Air Quality Standards (CAAQS) and the CAAQS are listed in California Code of Regulations Title 17, section 70200. Table 3.3-2 also presents the CAAQS. California standards for O_3, CO (except 8-hour standard for Lake Tahoe), NO_2, SO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All other standards are not to be equaled or exceeded.

Local

The Monterey Bay Unified Air Pollution Control District (MBUAPCD) has jurisdiction over air quality programs in Santa Cruz County, California. The MBUAPCD regulates most air pollutant sources, except for motor vehicles, marine vessels, aircraft, and agricultural equipment that are regulated by CARB or the Environmental Protection Agency (EPA). State and local government projects, as well as projects proposed by the private sector, are subject to local rules and regulations if the sources are regulated by the MBUAPCD. Additionally, the MBUAPCD, along with CARB, maintains and operates ambient air quality monitoring stations. These stations are used to monitor air pollutant levels in the ambient air.

The MBUAPCD published the "CEQA Air Quality Guidelines" in 2008. The purpose of the guidelines is to assist in the review and evaluation of air quality impacts from projects which are subject to CEQA. The guidelines established thresholds of significance used to determine if there is substantial evidence that a project may create significant air quality impacts (MBUAPCD 2008a). The guidelines provide thresholds of significance for criteria air pollutants. Maximum emissions thresholds for volatile organic compounds (VOC), nitrogen oxides (NO_X), PM_{10}, CO, and sulfur oxides (SO_X) have been established for new stationary sources (*e.g.*, operation of a new power plant) (Table 3.3-3).

The only criteria pollutant with established emissions thresholds for construction projects is PM_{10}. Construction activities (*e.g.*, excavation, grading, and on-site vehicles) that directly generate less than 82 pounds per day of PM_{10} are considered to have a less than significant impact on local air quality. The standard is based on a screening threshold of less than 2.2 acres per day for ground disturbance or less than 8.1 acres per day for light ground disturbance (MBUAPCD 2008a).

Ozone precursor emissions (*i.e.*, VOC or NO_X) from construction projects are accommodated in the emission inventories of State- and federally-required air plans, and, therefore specific construction emissions standards for these pollutants have not been established.

Table 3.3-3: MBUAPCD Thresholds of Significance

Pollutant	Threshold of Significance	
	Construction Impacts (lbs/day)	Operational Impacts (lbs/day)
VOC	—	137
NO_X	—	137
PM_{10}	82	82
CO	—	550
SO_X	—	150

Source: MBUAPCD 2008a

Air Basin Designations

The NCCAB is currently designated by CARB as nonattainment for the state O_3 and PM_{10} standards. The attainment designations for each pollutant are presented in Table 3.3-4.

Under the requirements of the CCAA, each air basin is required to develop its own strategies to achieve both state and federal air quality standards. The MBUAPCD developed the "2008 Air Quality Management Plan" for the NCCAB. The "2008 Air Quality Management Plan" is a transitional plan shifting focus of the efforts from achieving the 1-hour CAAQS for ozone to achieving the new 8-hour requirement. The plan includes an updated air quality trends analysis, which now reflects the 1-hour and 8-hour standards for ozone, as well as an updated

Table 3.3-4: National and State Air Quality Designations for the NCCAB

Pollutant	National Designation	State Designation
O_3	Unclassified/Attainment	Nonattainment
PM_{10}	Unclassified	Nonattainment
$PM_{2.5}$	Unclassified/Attainment	Attainment
CO	Unclassified/Attainment	Monterey County: Attainment Santa Cruz and San Benito Counties: Unclassified
NO_2	Unclassified/Attainment	Attainment
SO_2	Unclassified	Attainment
Pb	Unclassified/Attainment	Attainment
Sulfates	—	Attainment
Hydrogen Sulfide	—	Unclassified
Visibility Reducing Particles	—	Unclassified

Source: CARB 2012b

emission inventory, which includes the latest information on stationary, area, and mobile emission sources (MBUAPCD 2008b).

The "2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region" was developed by the MBUAPCD in 2007. This plan presents the strategies for maintaining the NAAQS for ozone in the NCCAB (MBUAPCD 2007).

In 2005, the MBUAPCD published the "2005 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region." The purpose of this plan is to fulfill the requirements of Senate Bill 656, which was approved by the state legislature in 2003 with the objective of reducing public exposure to particulate matter (MBUAPCD 2005).

Baseline Air Quality

The closest air quality monitoring station is the Santa Cruz Monitoring Station.[1] This station is the closest station to the project corridor that has consistent, recent data, and therefore is most reflective of the baseline air conditions in the project corridor. Table 3.3-5 presents summaries of the highest ambient air pollutant concentrations monitored at the Santa Cruz Monitoring

[1] The Watsonville-Airport Boulevard monitoring station is closer to the project corridor; however, this station does not provide consistent data after 2008.

Table 3.3-5: Air Quality Monitoring Data – Santa Cruz Monitoring Station

Pollutant	Averaging Time	Maximum Concentrations			Days above NAAQS			Days above CAAQS		
		2011	2010	2009	2011	2010	2009	2011	2010	2009
O_3 (parts per million)	1 hour	0.071	0.077	0.073	–	–	–	0	0	0
	8 hour	0.064	0.059	0.061	0	0	0	0	0	0
PM_{10} ($\mu g/m^3$)	24 hour	22	31	36	ND	0	0	ND	0	0
	Annual	ND	14.6	16.4	–	–	–	ND	0	0
$PM_{2.5}$ ($\mu g/m^3$)	24 hour	17.2	32.8	24.5	0	0	0	–	–	–
	Annual	6.5	6.5	5.6	0	0	0	0	0	0

Source: CARB 2012c

Station during the three most recent years (2009 through 2011) that have been recorded in the CARB database (CARB 2012c).

Toxic Air Contaminants

Toxic air contaminants (also referred to as hazardous air pollutants or air toxics) are air pollutants that may cause adverse health effects, including but not limited to cancer. Toxic air contaminants are substances that are listed in the EPA's hazardous air pollutant program or California's Assembly Bill (AB) 1807 or AB 2588 air toxics programs.

Toxic air contaminants are not considered criteria pollutants regulated under the NAAQS or CAAQS. The EPA and CARB regulate toxic air contaminants separately through National Emissions Standards for Hazardous Air Pollutants and the California Air Toxics Programs, respectively. The EPA has established National Emission Standards for Hazardous Air Pollutants as required by the CAA amendments. These include source-specific regulations that limit allowable emissions of such pollutants. The state regulates toxic air contaminants primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588).

Sensitive Receptors

According to the MBUAPCD (2008a), sensitive receptors are generally defined as residences, including private homes, condominiums, apartments, and living quarters; educational facilities, such as preschools and kindergarten through grade twelve schools; daycare centers; and health care facilities, such as hospitals or retirement and nursing homes.

The area around and including the project corridor is a mix of rural residential development, undeveloped natural habitats, and agricultural areas (PG&E 2012). Approximately 766 residences are located in the area that covers the project corridor and 600 feet from the project corridor—the distance across which residents may experience air quality impacts such as dust

generation. The majority of these residences are located in the southern portion of the project corridor. The nearest schools to the project corridor include Corralitos Union School and Bradley Elementary School, which are located approximately 0.2 miles south of the Northern Alignment near the intersection of Corralitos Road and Skylark Lane, and Aptos High School, which is approximately 0.2 miles southeast of Rob Roy Substation (PG&E 2012).

The Corralitos Cultural Center, an art gallery and performing arts venue, is located 0.4 miles northeast of the nearest pole, and the Central Coast Surgery center is located 1.2 miles southwest of Green Valley Substation. The Watsonville Community Hospital is approximately 2.5 miles southwest of the project corridor. The closest parks to the project corridor are the Pinto Lake County Park, which is spanned by the Northern Alignment; Mesa Village Park, located approximately 0.2 miles north of the project corridor in Watsonville; Scott County Park, located approximately 0.8 miles southwest of the nearest pole in Watsonville; and Polo Grounds County Park, located approximately 0.8 miles west of Rob Roy Substation in Aptos (PG&E 2012).

3.3.2 Applicant Proposed Measure

PG&E proposed to implement measures that would reduce environmental impacts. The following relevant APM is considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include this APM as part of the project, and PG&E would have to adhere to the APM. The APM that is applicable to the air quality analysis is shown in Table 3.3-6.

Table 3.3-6: Applicant Proposed Measure for Air Quality Impacts

APM Number	Requirements
APM AIR-01. Fugitive Dust Controls.	All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with non-toxic soil stabilizers at least two times per day or as needed to control fugitive dust.

3.3.3 Environmental Impacts and Assessment

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?	☐	☐	☒	☐
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?

Construction

The proposed project would be located in the NCCAB under the jurisdiction of the MBUAPCD. The NCCAB is in non-attainment for ozone and PM_{10}. The MBUAPCD adopted an Air Quality Management Plan (AQMP) in 2008, which addresses attainment of the state O_3 standard. Attainment of the state PM_{10} standard is addressed separately in "Senate Bill 656 Implementation Plan" (MBUAPCD 2005).

Construction of the proposed project would use equipment, vehicles, and aircraft (helicopters) that were analyzed as mobile sources in the 2008 AQMP. The proposed project would not obstruct implementation of measures defined in the 2008 AQMP for attainment of ozone standards. The "Senate Bill 656 Implementation Plan" identifies control measures for fugitive dust emissions. Control measures for unpaved roads would apply to the proposed project. APM AIR-01 and APM BIO-10 are consistent with the control measures D-1 and D-2 defined in the Implementation Plan. Construction of the project would therefore not conflict with an air quality management plan, and impacts would be less than significant.

Operations and Maintenance

A project is generally considered inconsistent with an air quality plan if it would result in population or employment growth that exceeds estimates used to formulate the applicable

AQMP. The project would not conflict with the applicable AQMP because the proposed project would not induce population growth or employment growth (because it is meant to increase reliability of an existing line to serve existing customers) and would not result in a long-term increase in emissions from operations and maintenance activities. Impacts would therefore be less than significant.

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

Construction

On-road vehicles, off-road vehicles and equipment, and helicopters would generate air pollutant emissions during project construction. Air pollutant emissions to be generated would be in the forms of fugitive dust emissions (PM_{10} and $PM_{2.5}$) and exhaust emissions (NO_X, SO_X, CO, VOC, PM_{10}, and $PM_{2.5}$). The proposed project would be constructed in four phases, and the total duration of four construction phases would be approximately fifteen to eighteen months. The proposed project includes implementation of APMs AIR-01 and BIO-10.

The emissions estimation for the project was performed using the California Emissions Estimator Model (CalEEMod) 2011 model and project construction activity data (PG&E 2013). Helicopter emissions were calculated using the Federal Aviation Administration's Emissions and Dispersion Modeling System and the California Climate Action Registry General Reporting Protocol. Table 3.3-7 provides a summary of the estimated peak daily air pollutant emissions after implementation of the APMs for construction activities.[2] Detailed emission calculations for construction phases are provided in Appendix A.

Construction activities that directly generate 82 pounds or more of fugitive PM_{10} emissions would result in a significant impact to local air quality when they are located upwind of sensitive receptors, according to the MBUAPCD. Construction activities with minimal earthmoving that would disturb fewer than 8.1 acres per day and construction activities with more intense grading and excavation that would disturb fewer than 2.2 acres per day would both fall below the MBUAPCD screening threshold and impacts would be considered less than significant. The proposed project would result in less than 1 acre of ground disturbance per day and would therefore fall below the 8.1 acres per day threshold and impacts would be less than significant. More intense earthwork would be required at pole sites where excavation would be required. However, the maximum area disturbed during pole site preparation would be 0.04 acres per structure. Even if it is assumed a number of pole sites would be prepared

[2] Panorama contacted MBUAPCD on September 7, 2012. MBUAPCD recommended including emissions from helicopters with other construction emissions. Helicopter emissions are therefore included in the emissions summary in Table 3.3-7.
A fifteen-month construction duration was assumed for the analysis presented here, as well as a 10 percent additional emissions factor to account for any increased activity (*e.g.*, addition of poles).

Table 3.3-7: Estimated Peak Daily Air Pollutant Emissions (Including Implementation of the APMs) During 15-Month Construction Period

Item	Estimated Peak Daily Air Pollutant Emissions (pounds/day)					
	$PM_{2.5}$	PM_{10}	NO_X	SO_X	CO	VOCs
Vehicles, Fugitive Dust	28.91	55.42	460.89	0.67	309.20	66.99
Helicopters	16.36	18.17	43.58	10.87	43.58	3.37
Total	**45.27**	**73.59**	**504.47**	**11.54**	**352.78**	**70.36**
Emission Threshold	**—**	**82**	**—**	**—**	**—**	**—**
Threshold Exceeded?	**Not Applicable (N/A)**	**No**	**N/A**	**N/A**	**N/A**	**N/A**

Source: PG&E 2012 and 2013

simultaneously on a given day, the maximum area disturbed would be unlikely to exceed 2.2 acres, and impacts are expected to be less than significant. In order to ensure the fugitive PM_{10} threshold is not exceeded, PG&E has committed to implementing APMs AIR-01 and BIO-10, which include a number of fugitive dust control measures as required by the MBUAPCD. With implementation of these measures, impacts from fugitive dust during construction would be less than significant and would not violate any air quality standards or contribute substantially to an existing project air quality violation.

The project corridor is a State non-attainment area for ozone; however, there are no emissions thresholds for ozone precursors for construction projects. The emissions thresholds and measures established for ozone in the 2008 AQMP apply to stationary sources. Air quality at the nearest monitoring station to the project corridor (Santa Cruz monitoring station) (Clymo pers. comm. 2013) has met the state and federal standards for ozone and PM_{10}, indicating the project corridor is not in violation of the ozone or PM_{10} standards. There are no other sources of pollutants between the station and the project corridor that could indicate that the air quality would be different in the project corridor. Construction of the proposed project would not result in exceedance of an air quality standard or contribute significantly to an existing or projected air quality violation. Impacts from construction of the proposed project would therefore be less than significant.

Operations and Maintenance

The proposed project would be constructed in the alignment of the existing power lines owned and operated by PG&E. No additional vehicle trips beyond those currently required for project operations and maintenance would be necessary. The modification of Rob Roy Substation would not increase operational and maintenance efforts for the substation (PG&E 2012). The project operation and maintenance activities would be expected to remain the same as the existing conditions, and there would be no increase in air pollutant emissions associated with

project operations and maintenance (PG&E 2012). Therefore, there would be no air quality impacts associated with project operations.

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)?

Pursuant to MBUAPCD policy, projects that would be inconsistent with the applicable AQMP or induce population growth beyond that estimated in current population projections would be considered to have a significant cumulative impact with regards to criteria air pollutant emissions (MBUAPCD 2008b). The proposed project would not induce population growth because it is meant to better serve existing customers instead of accommodating new customers. As discussed for criterion A), above, the project would be consistent with the AQMP. Impacts would be less than significant.

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

Sensitive receptors in the project vicinity would be affected by the increased air pollutant emissions during project construction due to their proximity to the project corridor and the distance that dust and other emissions may travel from project construction activities. Approximately 766 housing units are located in an area containing the project corridor and a 600-foot buffer around it—the distance within which dust and emissions may cause adverse impacts. In some locations, residential properties are built adjacent to the project corridor. Rose Blossom Nursery School is located in the project corridor. The nearest schools to the project corridor include Corralitos Union School and Bradley Elementary School, which are located approximately 0.2 miles south of the Northern Alignment near the intersection of Corralitos Road and Skylark Lane (PG&E 2012), and Aptos High School, located 740 feet southeast of the project corridor boundary. Construction activities would be spread across the approximately 8.8-mile alignment, lasting a few days at each pole due to the linear nature of the project. Implementation of APMs AIR-01, and BIO-10, which include controlling fugitive dust emissions, would minimize air pollutant emission exposure to sensitive receptors.

Residences located near the two landing zones may experience increased fugitive dust emissions and NO_x and VOC emissions during helicopter take-off and landing activities. The nearest residences to each landing zone would be at distances of approximately 100 feet, respectively. In addition, the implementation of APM AIR-01 would control fugitive dust emissions in the landing areas through watering or using a soil stabilizer. The fugitive dust emission impacts to the residences would not be significant. Air quality impacts associated with the project to sensitive receptors would be less than significant.

The MBUAPCD recommends health risk assessments be conducted for projects when construction activities would last for one year or longer at the same site. Construction would take from 15 to 18 months; however, individual receptors would not be exposed to elevated levels of pollutants (*i.e.*, from diesel exhaust) for an extended period of time due to the linear

nature of the power line construction activities and the relatively short construction period proposed at the Rob Roy Substation (*i.e.,* one month). Individual sensitive receptors are not expected to be exposed to pollutant emissions from construction equipment for more than a few weeks along the proposed power line segments and for more than one month in the vicinity of the Rob Roy Substation. Emissions during construction of the project construction would have a less than significant impact on nearby receptors because health risks associated with diesel emissions are generally associated with chronic exposure.

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

Construction activities may generate some site-specific odors associated with vehicle and equipment exhaust emissions. Odors would be minor and similar to odors associated with driving vehicles, mowing lawns, and other fuel-burning activities. There would be no change in the use of vehicles as compared with existing conditions after the project is constructed and operational. There would be no odor impact during project operations. The odor impact associated with the proposed project would be less than significant.

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3.4 BIOLOGICAL RESOURCES

3.4.1 Environmental Setting

Methods

Surveys and Literature Review

Information from various databases, field surveys, and biological resources reports was used in this analysis. The information was used to identify special-status species with potential to occur, determine appropriate study areas for the project, and prepare this analysis documenting existing conditions for biological resources. The information was augmented by the professional judgment of qualified biologists. The reports used for the analysis include the following:

- *Preliminary Draft Biological Resources Technical Report* (Insignia 2012a)
- *California Red-Legged Frog Protocol-Level Surveys* (Insignia 2011)
- *Rare Plant Survey Report* (Insignia 2012b)
- *Santa Cruz Long-toed Salamander Habitat Assessment* (Biosearch 2012a)
- *Revised Final Santa Cruz Long-toed Salamander Habitat Assessment* (Biosearch 2012b)
- *Amesti Contractor Storage Yard Habitat Assessment Survey Results* (Insignia 2012c)
- *Corralitos Staging Area/Landing Zone Habitat Assessment* (Insignia 2012d)
- *Sakata Staging Area Habitat Assessment* (Insignia 2012e)
- *Santa Cruz Long-Toed Salamander Assessment and Fencing Strategy* (AECOM 2013a)
- *Preliminary Delineation of Waters of the United States* (AECOM 2013b)

Species are considered to be special-status if they meet any of the following criteria:

- Plant and animal species listed as endangered, threatened, or candidates for listing under the federal Endangered Species Act (ESA)
- Plant and animal species listed as endangered, threatened, or candidates for listing under the California Endangered Species Act (CESA)
- Animal species designated as Fully Protected, as defined in California Fish and Game Code Sections 3511, 4700, 5050, and 5515
- Animal species designated as Species of Special Concern by the California Department of Fish and Wildlife (CDFW)
- Plant species included on List 1, 2, 3, or 4 of the California Rare Plant Rank (CRPR) system

The reports listed above provide information on general habitat types in the project corridor; information on species from habitat assessments; and the results of focused surveys for rare plants and California red-legged frog, including timing and extent of surveys. Field surveys were conducted as follows:

- Habitat was mapped within a 300-foot-wide buffer centered on the proposed power line alignment

- Habitat was mapped within a 100-foot-wide buffer around Rob Roy Substation and proposed staging areas and contractor storage yards
- Rare plant surveys were performed within a 100-foot-wide buffer centered on the proposed power line alignment and extending around staging areas and contractor storage yards during May, June, and August 2011 and March 2012
- Habitat assessments were performed in all work areas to the west of Corralitos Creek for potential habitat for Santa Cruz long-toed salamander (Biosearch 2012 and AECOM 2013a)
- Wetland delineations were performed for 4.47 acres containing potential wetlands and water features in work areas (AECOM 2013b).

Information on special-status species occurrences, potential presence in the area, and listing status was also obtained from the California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS), CDFW, and the U.S. Fish and Wildlife Service (USFWS).

Agency Coordination

CDFW, USFWS, and Santa Cruz County were contacted to discuss impacts to sensitive species and to discuss tree removal. Coordination included:

- Site visits
- Discussion of potential occurrence of and impacts to:
  - California red-legged frog
  - Santa Cruz long-toed salamander
  - Bald eagle
  - Bats
  - Dusky-footed woodrats
- Discussion of Monterey spineflower
- Discussion of oak tree and Monterey pine removal
- Review of applicant proposed measures and mitigation measures
- Discussion of necessary permits
- Discussion of Clean Water Act Permit requirements

The information obtained from the agencies has been incorporated into the impact analysis provided in Section 3.4.3.

Habitat Types/Vegetation Communities

The project corridor crosses several different types of habitat. Vegetation communities that were mapped within the project corridor are shown on Figures 3.4-1 and 3.4-2. Plant species typical of each of the vegetation communities and habitat types present within the project corridor are described in Table 3.4-1. The habitat types are listed in decreasing order of abundance. Habitat was not mapped around existing roads.

Special-status Plants

Overview

A preliminary literature search of CNDDB occurrence records within a 5-mile buffer around the project corridor was undertaken. Table 3.4-2 lists special-status plant species (also referred to as "rare plants" in this section) that could potentially occur within the project corridor and their likelihood of occurrence based on habitat type and site conditions.

Focused surveys for special-status plants were conducted on May 23 to June 1, 2011; August 10 to August 22, 2011; and March 13, 2012, by Insignia. Special-status plant species surveys were conducted in suitable habitat the following plants within approximately 100 feet of the Northern Alignment, the Cox-Freedom Segment, project work areas, and overland access routes for:

- Monterey spineflower
- Robust spineflower
- Gairdner's yampah
- Monterey pine
- Santa Cruz tarplant
- Kellogg's horkelia
- Choris' popcorn-flower

Figures 3.4-3 and 3.4-4 show the locations where special-status plant species surveys were conducted and the results of the surveys.

Special-status Plant Species with a High Potential to Occur in the Project Corridor

Monterey Spineflower. Monterey spineflower (*Chorizanthe pungens* var. *pungens*) is listed as endangered under the federal ESA and is listed as CRPR 1B.2. The species grows in maritime chaparral, coastal dunes, and coastal oak woodlands, where loose, sandy, marine-derived soils are present. Plants are typically present beginning in December and flower from April to August. Dense clusters of small pink or white flowers occur on secondary branches. Monterey spineflower was identified in multiple project work areas during focused surveys (Figures 3.4-3 and 3.4-4). Eight populations and one occurrence[1] of Monterey spineflower were identified during focused surveys. These populations ranged in size and density and covered approximately 4 acres of the project corridor (Insignia 2012b), as described in Table 3.4-3.

[1] An occurrence is when there is a location of a special status plant with only one plant or several plants clustered in a small area.

Figure 3.4-1: Vegetation Communities, Map 1

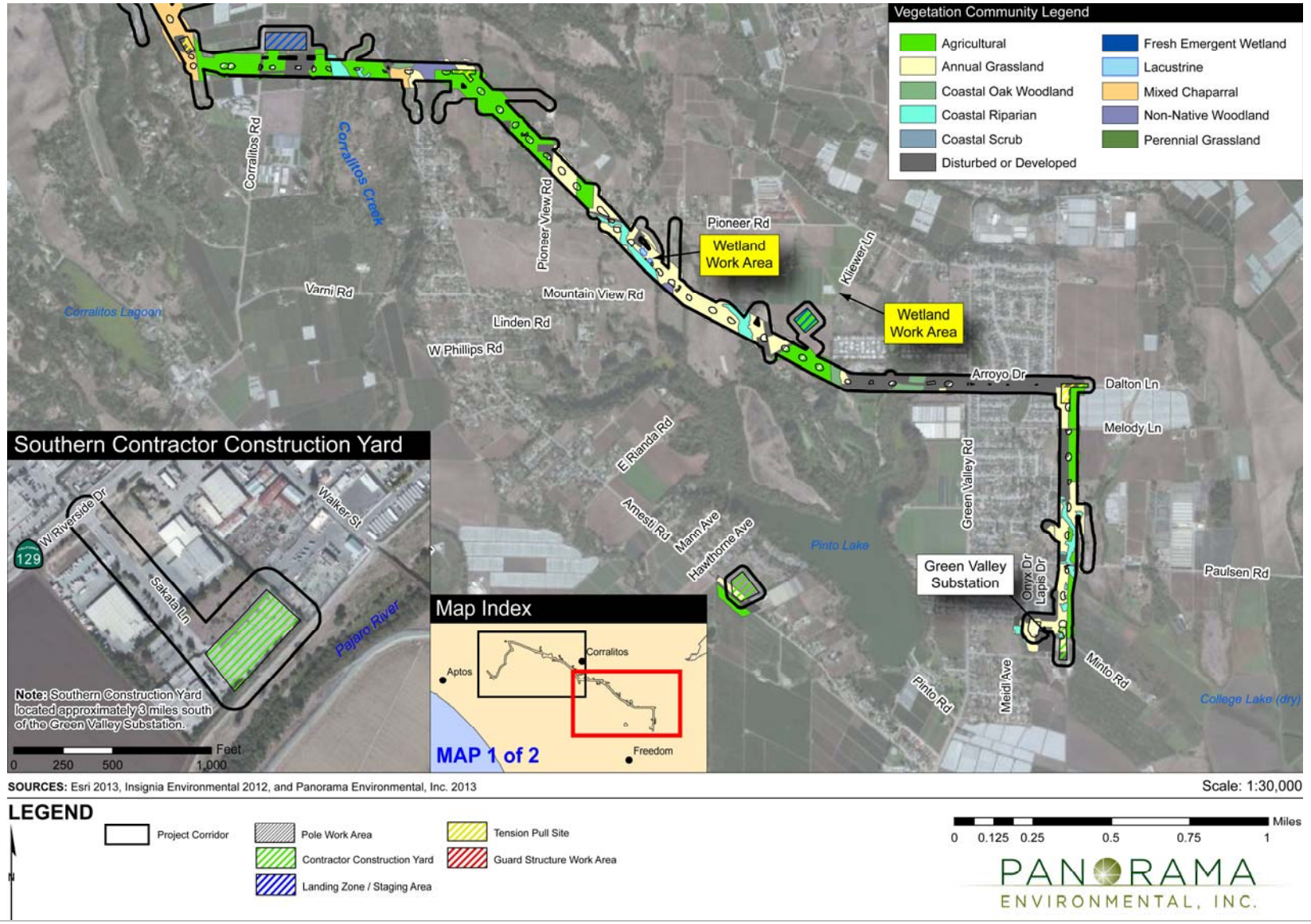


Figure 3.4-2: Vegetation Communities, Map 2

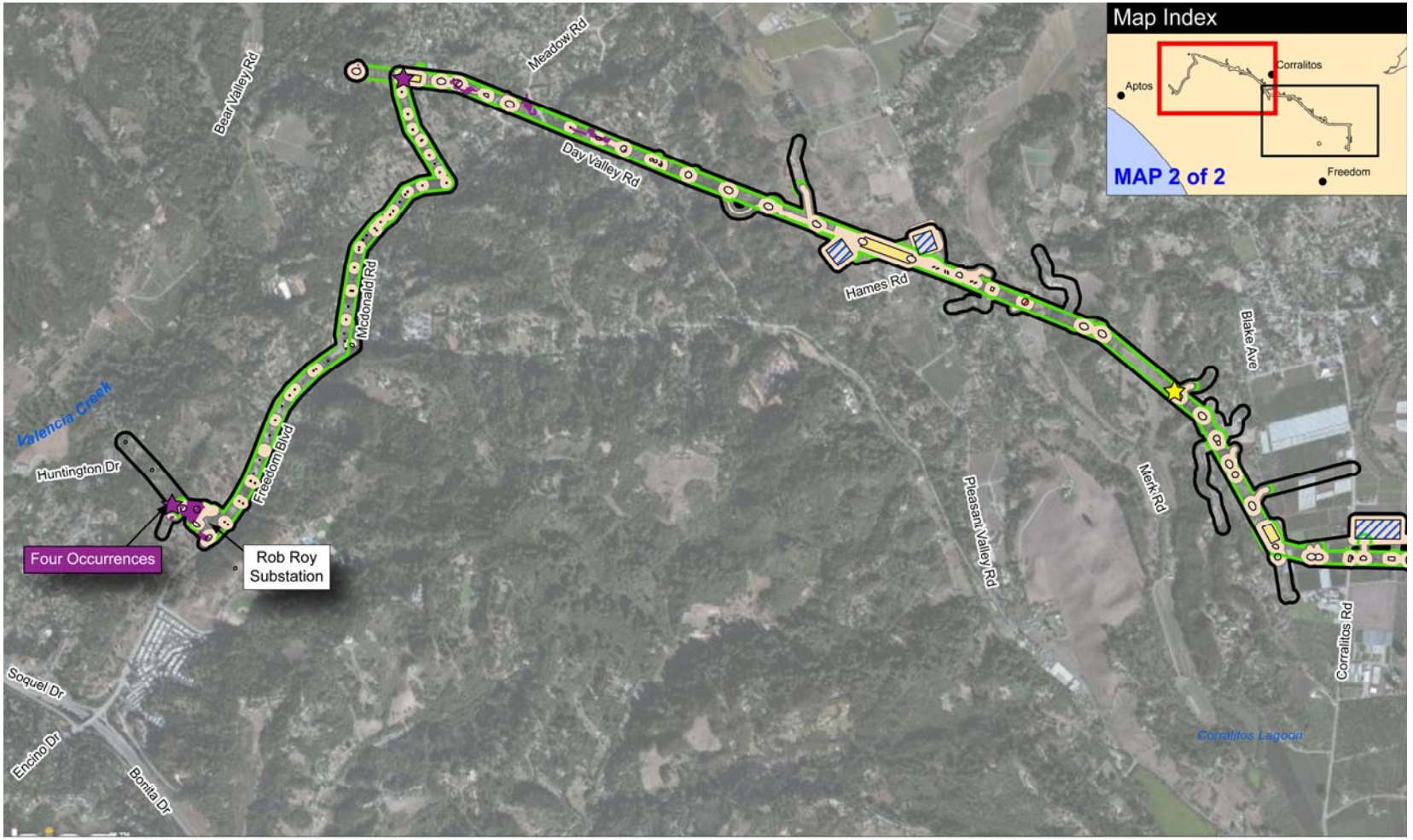


Table 3.4-1 Typical Plant Species by Habitat Type

Habitat Type/Vegetation Community	Plants	Mapped Acres of Habitat in Project Corridor	Description of Habitat Type
Disturbed	N/A	174.0	Disturbed or developed areas include residential and commercial development, landscaped areas, paved areas, and bare, unpaved, and gravel lots. These areas often support native and nonnative avian species by providing nesting and foraging habitat but do not support special-status vegetation species. Disturbed or developed habitat is located throughout the project corridor and is the most abundant habitat.
Agriculture	N/A	116.4	Agricultural areas in the project corridor include apple orchards, berry fields, vineyards, other row crops, greenhouses, and livestock holding areas. Agricultural land is primarily located in the eastern half of the project corridor. Agricultural areas do not support special-status species.
Annual Grassland	• Annual beard grass (*Polypogon monspeliensis*) • Harding grass (*Phalaris aquatica*) • Wild oats (*Avena* spp.) • Big quaking grass (*Briza maxima*) • Chess (*Bromus* spp.) • Thistle (*Centaurea* spp.) • Curly dock (*Rumex crispus*)	74.7	Annual grasslands in the project corridor include a variety of different settings, including clearings in coastal oak woodland, fallow fields, pastures, and previously cleared or disturbed areas where the dominant plants include annual and typically nonnative grasses and other weedy species. Annual grassland areas are commonly used for livestock grazing. They also can develop in fallow agricultural fields. These areas occasionally contain sparse coast live oak trees or coyote brush. This plant community is often the most likely community to replace coastal prairies, historically a common habitat in the project corridor. The historical presence of coastal prairie suggests that some special-status plants may occur in annual grassland communities. Annual grasslands are found throughout the project corridor.

Table 3.4-1 (*Continued*): Typical Plant Species by Habitat Type

Habitat Type/Vegetation Community	Plants	Mapped Acres of Habitat in Study Area	Description of Habitat Type
Mixed Chaparral	• Chamise (*Adenostoma fasciculatum*) • Sticky monkey-flower (*Mimulus aurantiacus*) • Manzanita (*Acrtostaphylos* spp.) • California sagebrush (*Artemisia californica*) • Coast buckwheat (*Eriogonum latifolium*) • Yellowbush lupine (*Lupinus arboreus*) • Nonnative grasses	38.4	Mixed chaparral communities form in the driest portions of the project corridor. The lack of water is often caused by the presence of well-drained sandy soils, southern or western exposure, topographic position, or a combination of these features. This community often forms on soils developed from fossil marine sediments, creating unique habitats that are often home to several rare endemic species. These communities are found in small patches throughout the project corridor along the Northern Alignment and the Cox-Freedom Segment.
Coastal Oak Woodland	• Coast live oak (*Quercus agrifolia*) • Pacific madrone (*Arbutus menziesii*) • Coast redwood (*Sequoia sepervirens*) • Eucalyptus (*Eucalyptus* spp.) • Monterey pine (*Pinus radiata*) • Poison oak (*Toxicodendron diversilobum*) • California blackberry (*Rubus ursinus*) • Himalayan blackberry (*Rubus discolor*) • California coffeeberry (*Rhamnus californica*) • Manzanita • Toyon (*Heteromeles arbutifolia*) • Nonnative broom (*Cystium* spp. and *Spartium* spp.) • Nonnative grasses	32.2	Coastal oak woodlands are most common along south- and west-facing hillsides. Coastal oak woodlands typically occur outside of the project corridor or in gullies where the power line conductor is higher off the ground. This habitat is scattered throughout the project corridor.

Table 3.4-1 (*Continued*): Typical Plant Species by Habitat Type

Habitat Type/Vegetation Community	Plants	Mapped Acres of Habitat in Study Area	Description of Habitat Type
Coastal Scrub	• Coyote brush (*Baccharis pilularis*) • Manzanita • Ceanothus (*Ceanothus* spp.) • California coffeeberry • Toyon • Madrone (*Arbutus* L.) • Poison oak • Nonnative broom • Coast live oak	18.3	This community most commonly develops beneath existing power lines in coastal oak woodland areas where vegetation management has promoted the growth of shrub-forming species and hindered the growth of canopy-forming species, such as coast live oak. Coastal scrub also forms on drier or warmer hillsides where mature oak development is otherwise stunted. Coastal scrub is scattered throughout the project corridor. Policy 5.1.2 of the Conservation and Open Space Element of the County General Plan defines coastal scrub as a sensitive habitat.
Coastal Riparian	• Willow (*Salix* spp.) • Sedge (*Carex* spp.) • Rush (*Juncus* spp.) • Blackberry (*Rubex* spp.) • Nonnative and native grasses • Poison oak • Cottonwood (*Populus* spp.)	15.0	Coastal riparian communities form in coastal oak woodlands, coastal scrub, annual grassland, and perennial grassland communities, where intermittent or perennial drainages, streams, or other ephemeral water bodies are found. Large stands of cottonwoods can develop along large creeks or drainages, such as Corralitos Creek. These communities are heavily impacted by livestock grazing and agricultural runoff within the project corridor. Coastal riparian communities occur throughout the project corridor, but are concentrated in the eastern portion.
Nonnative Woodland	• Eucalyptus • Acacia (*Acacia* spp.) • Poison oak • Nonnative broom	10.1	Nonnative woodland areas typically support a limited amount of native vegetation. *Acacia* spp. woodland is found at only one location within the project corridor, approximately 2,000 feet northwest of the intersection of Corralitos Road and Skylark Lane along the Northern Alignment. *Eucalyptus* spp. woodland is very common and is found throughout the entire study area. *Eucalyptus* spp. stands often support nesting raptors.

Table 3.4-1 (*Continued*): Typical Plant Species by Habitat Type

Habitat Type/Vegetation Community	Plants	Mapped Acres of Habitat in Study Area	Description of Habitat Type
Perennial Grassland	• Harding grass • Native and nonnative bunchgrasses	2.3	Perennial grassland communities are less common than annual grasslands due to increased competition from fast-growing annual grasses. In the project corridor, this habitat is found at one location approximately 1,200 feet west of the Aldridge Lane/Blake Avenue intersection and approximately 1,950 feet southwest of the Hames Hollow/Hames Road intersection.
Fresh Emergent Wetland	• Willow • Sedge • Rush • Broadleaf cattail (*Typha latifolia*) • Tule (*Schoenoplectus sp.*) • Fringed willowherb (*Epilobium ciliatum*) • Watercress (*Nasturtium officinale*)	0.83	Fresh emergent wetlands consist of annual or perennial grasslands where water concentrates, promoting the growth of mesic plant species. These communities typically form along valley bottoms or near seeps, where soils remain saturated for the majority or all of the year. Fresh emergent wetlands can also occur in livestock pastures that are subject to routine flooding. These areas have the potential to support special-status grassland species associated with mesic sites. Fresh emergent wetland is found in an agricultural ditch adjacent to Kliewer Lane.
Stock Ponds	• Floating marsh pennywort (*Hydrocotyle ranunculoides*) • Pennyroyal • Rabbitsfoot grass	0.38	Two stock ponds are located within the project area. The stockponds are characterized by open water with vegetation growing along the margin of the pond. The ponds are used by liveskock.
Lacustrine	• Duckweed (*Lemna* spp.) • Cattail • Willow • Sedge • Cottonwood	0.3	Lacustrine habitat is defined by the presence of perennial fresh water, typically in the form of ponds, lakes, or reservoirs. Emergent vegetation may be absent due to heavy livestock use in some areas, and there is no record of special-status plant species occurring in lacustrine habitat locally. The proposed 115-kV power line spans lacustrine habitat approximately 1,500 feet east of the intersection of Pioneer View Road and Pioneers Road, where two stock ponds are present. Several additional stock ponds are located in the surrounding area, including College Lake, a large seasonal lake east of the intersection of Lapus Drive and Agate Drive.

Table 3.4-1 (*Continued*): Typical Plant Species by Habitat Type

Habitat Type/Vegetation Community	Plants	Mapped Acres of Habitat in Study Area	Description of Habitat Type
Seasonal Wetland	• Rabbitsfoot grass (*Polypogon mospeliensis*) • Pennyroyal (*Mentha pulegium*) • Italian ryegrass (*Festuca perrensis*) • Tall flatsedge (*Cyperus eragrostis*)	0.02	Seasonal wetlands are characterized as areas that are seasonally inundated or saturated. Within the project area there is a seasonal wetland located near Pioneer Road. The seasonal wetland has been disturbed by livestock use.

Source: Insignia 2012a; AECOM 2013b

Table 3.4-2: Special-status Plant Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Blooming Period	Potential to Occur
Anderson's manzanita (*Arctostaphylos andersonii*)	1B.2	This species is found in the Santa Cruz Mountains from southeast Santa Cruz County and southern Santa Clara County to southern San Mateo County. It typically occurs in openings in Douglas fir (*Pseudotsuga menziesii*), coast live oak (*Quercus agrifolia*), and coast redwood (*Sequoia sempervirens*) forests. It is distinguished from other local species by the lack of a basal burl and is typically found below 3,000 feet in elevation.	November to May	Low
Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*)	1B.2	This species inhabits marine sandy soil deposits in closed-cone coniferous forest, maritime chaparral, coastal oak woodland, and coastal scrub from Monterey County to southern Santa Cruz County. It requires fire for germination.	January to June	Low
Pajaro manzanita (*Arctostaphylos pajaroensis*)	1B.1	This species inhabits marine sandy soil deposits in closed-cone coniferous forest, maritime chaparral, coastal oak woodland, and coastal scrub from Monterey County to southern Santa Cruz County. It requires fire for germination.	December to March	Low
Kings Mountain manzanita (*Arctostaphylos regismontana*)	1B.2	This species is found in the Santa Cruz Mountains from San Mateo County to Santa Clara County in broad-leafed upland forest, chaparral, and closed-cone coniferous forest.	January to April	Absent
Bristly sedge (*Carex comosa*)	2.1	This species occurs throughout California, Oregon, Idaho, and Washington, although the species is typically rare throughout this range. It occurs along coastal marshes and fresh emergent wetlands.	May to September	Low
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	1B.2	This species is found in valley and foothill grassland habitat from sea level to 760 feet in elevation. It commonly occurs along the periphery of seasonal swales or vernal pools.	May to November	Low

Table 3.4-2 (*Continued*): Special-status Plant Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Blooming Period	Potential to Occur
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	FT 1B.2	This species inhabits openings in maritime chaparral, grassland, and coastal scrub growing in marine sandy soil deposits, coastal dunes, and interior stabilized dune deposits.	April to August	Present
Robust spineflower (*Chorizanthe robusta* var. *robusta*)	FE 1B.1	This species inhabits openings in maritime chaparral, grassland, and coastal scrub growing in marine sandy soil deposits, coastal dunes, and interior stabilized dune deposits.	April to September	High
Eastwood's goldenbush (*Ericameria fasciculata*)	1B.1	This species inhabits openings in maritime chaparral, closed-cone coniferous forests, coastal dunes, and coastal scrub. The nearest specimen was recorded in October 2003, 9 miles east of the project corridor.	July to October	Low
Sand-loving wallflower (*Erysimum ammophilum*)	1B.2	This species inhabits sandy openings in maritime chaparral and coastal scrub growing in coastal dunes.	February to June	Low
Minute pocket moss (*Fissidens pauperculus*)	1B.2	This species occurs in north coast coniferous forests from Santa Cruz County north to Humboldt County. Locally, it is found growing on damp soils along the edges of perennial or seasonal streams in coast redwood, Douglas fir, or tanoak (*Lithocarpus densiflorus*) woodlands.	January to May (fruiting period)	Absent
Sand gilia (*Gilia tenuiflora* ssp. *arenaria*)	FE CT 1B.2	This species inhabits sandy openings in maritime chaparral, cismontane woodland, coastal scrub, and coastal dunes. It is most often found where shrub cover and plant litter are low to moderate.	April to June	Low
Santa Cruz tarplant (*Holocarpha macradenia*)	FT CE 1B.1	This species inhibits sandy or sandy-clay soils in coastal scrub, prairie, and grassland along Monterey Bay from Prunedale to Santa Cruz. It often benefits from livestock grazing or seasonal mowing, which reduces competition with nonnative grasses.	June to October	Moderate

Table 3.4-2 (*Continued*): Special-status Plant Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Blooming Period	Potential to Occur
Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*)	1B.1	This species inhabits old dunes and coastal sand hills in openings in closed-cone coniferous forests, maritime chaparral, and coastal scrub habitats.	April to September	Moderate
Smooth lessingia (*Lessingia micradenia* var. *glabrata*)	1B.2	This species occurs in serpentine outcrops and in rocky soils in serpentine bunchgrass grassland. It is endemic to the Santa Clara Valley along the western slope of the Santa Cruz Mountains, occurring from 400 to 1,600 feet in elevation.	July to November	Absent
Woodland woolythreads (*Monolopia gracilens*)	1B.2	This species inhabits openings within cismontane and north coast conifer forests and is often found near or in areas with serpentine or rocky soils. Local occurrences have been recorded near Hecker Pass or on the eastern side of the Santa Cruz Mountains in Santa Clara County.	February to July	Absent
Dudley's lousewort (*Pedicularis dudleyi*)	CR 1B.2	Limited information regarding the species is available, as only ten recorded observations have been made. It is believed to inhabit cool, moist stream banks and vertical cuts in coast redwood forests.	April to June	Absent
Santa Cruz Mountains beardtongue (*Penstemon rattanii* var. *kleei*)	1B.2	This species inhabits sandy shale slopes in recently burnt chaparral and openings in lower montane coniferous forest habitats between 1,200 and 3,500 feet in elevation.	May to June	Absent
White-rayed pentachaeta (*Pentachaeta bellidiflora*)	FE CE 1B.1	This species occurs in open grasslands or dry rocky slopes in serpentine-derived soils communities.	March to May	Absent
Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*)	4.2	This species occurs in vernally mesic areas within chaparral, coastal prairie, grasslands, and broad-leafed forests throughout coastal California.	June to October	High

Table 3.4-2 (*Continued*): Special-status Plant Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Blooming Period	Potential to Occur
Monterey pine (*Pinus radiata*)	1B.1	This species occurs in closed-cone coniferous forests and cismontane woodland below 4,000 feet. Monterey pines are adapted to soils of medium to heavy texture. Cones require high temperatures to release seeds.	Late winter to early spring	High
Yadon's rein orchid (*Piperia yadonii*)	FE 1B.1	This species occurs in sandy coastal bluff scrub, closed-cone coniferous forests, and maritime chaparral. Populations in woodland communities occur under partial canopy cover in an open, mostly herbaceous understory. The nearest observation of this species was recorded in June 2001, approximately 6 miles southeast of the project corridor.	February to August	Low
Choris' popcorn-flower (*Plagiobothrys chorisianus* var. *chorisianus*)	1B.2	This species inhabits seasonally inundated wetlands or vernal pools in coastal prairies and openings in coastal oak woodlands and coastal scrub.	March to June	Moderate
San Francisco popcorn-flower (*Plagiobothrys diffusus*)	CE 1B.1	This species inhabits seasonally inundated wetlands or vernal pools in coastal prairies with serpentine soils and serpentine bunchgrass communities.	March to June	Absent
Santa Cruz clover (*Trifolium buckwestiorum*)	1B.1	This species occurs in moist coastal prairies or meadows, typically surrounded by cismontane or conifer woodlands.	April to October	Absent

Notes:

California Rare Plant Rank:

1B.1: Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2: Rare, threatened, or endangered in California and elsewhere; fairly threatened in California
2.1: Rare, threatened, or endangered in California; more common elsewhere; seriously threatened in California
4.2: Uncommon in California; fairly threatened in California

Federal listing codes:

FE: Federally Endangered Species
FT: Federally Threatened Species

California listing codes:

CE: State-listed as Endangered
CR: State-listed as Rare
CT: State-listed as Threatened

Insignia 2012a, CNDDB 2012

Figure 3.4-3: Special-status Plant Species Survey Areas and Results, Map 1

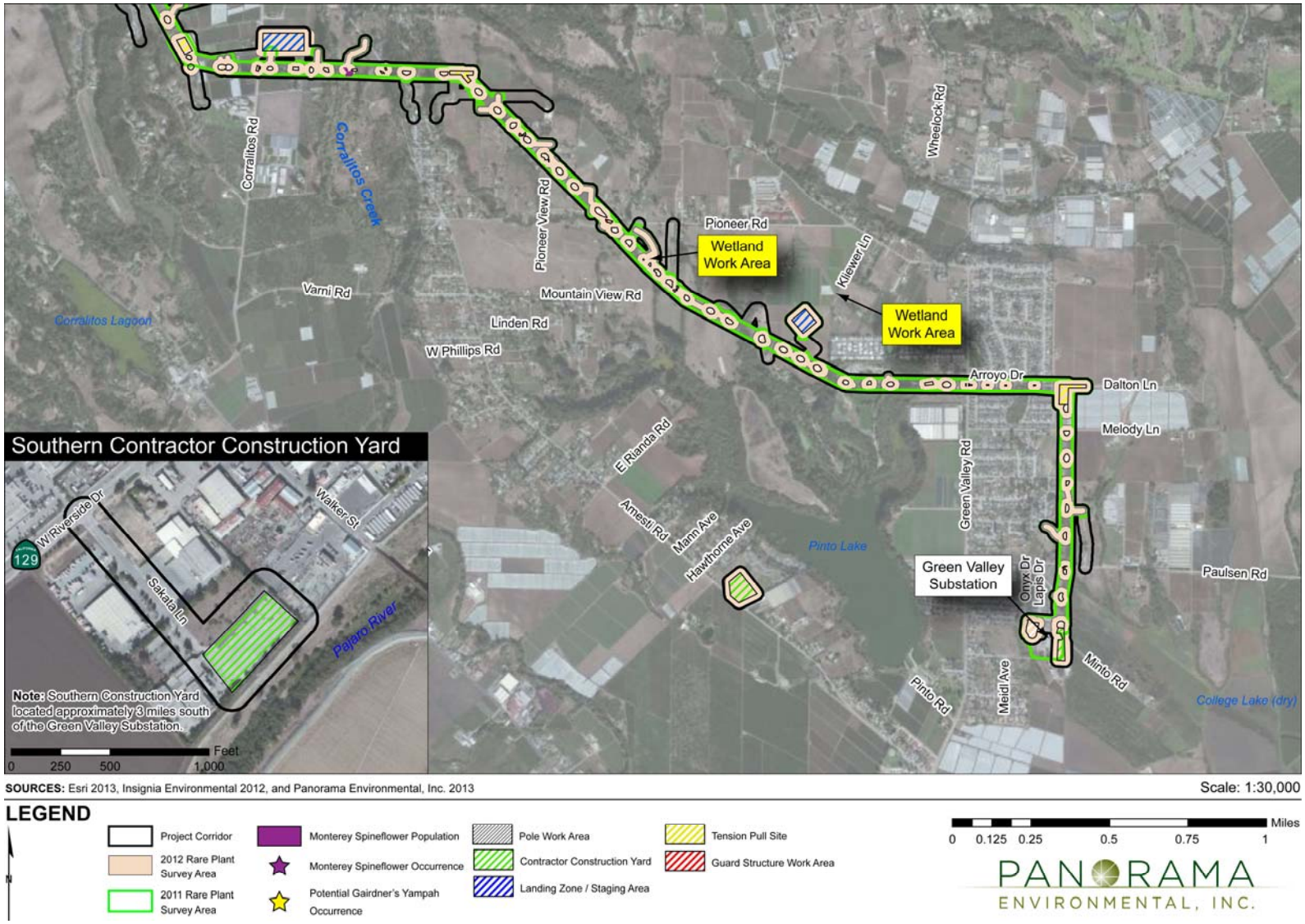
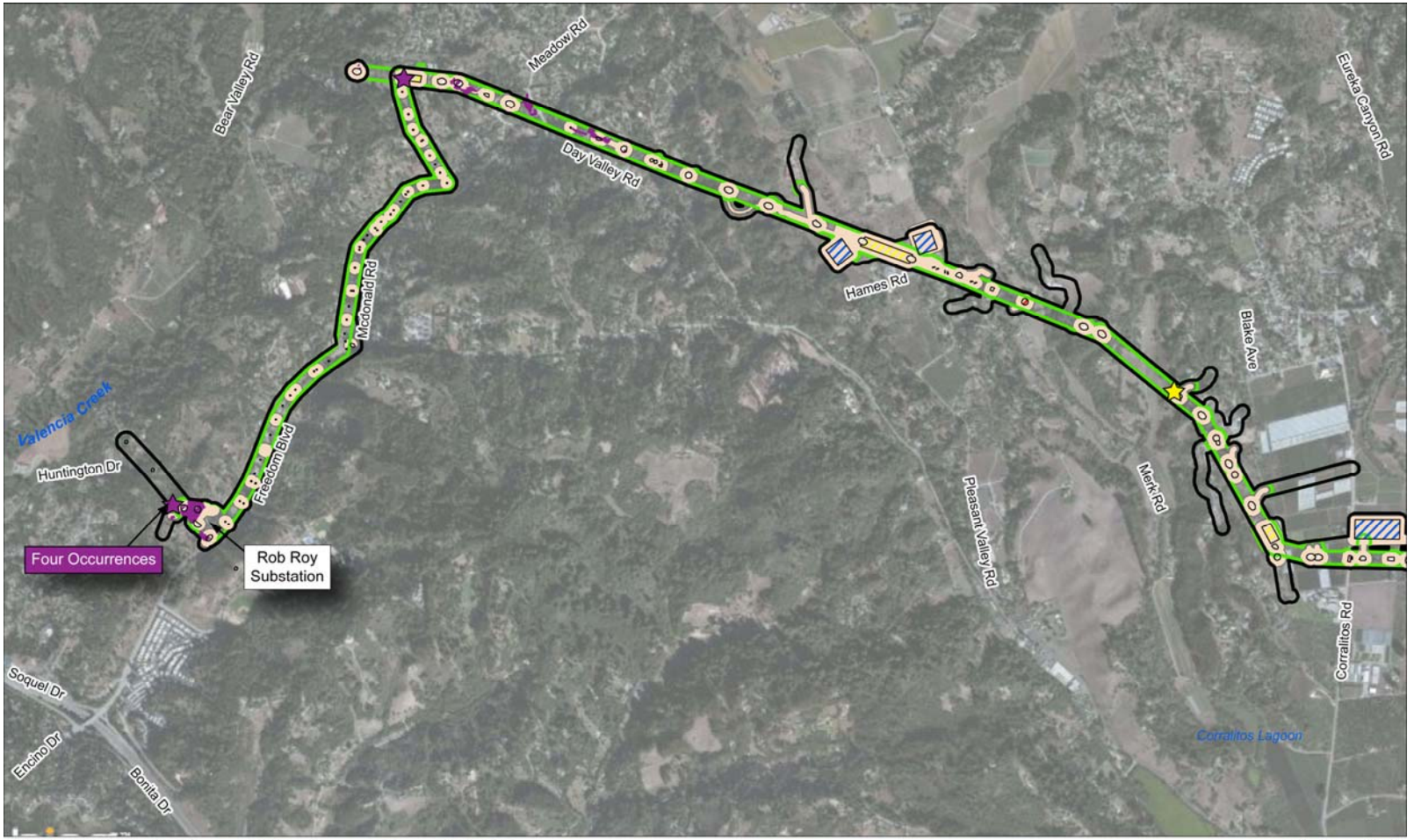


Figure 3.4-4: Special Status Plant Species Survey Areas and Results, Map 2



Robust Spineflower. Robust spineflower (*Chorizanthe robusta* var. *robusta*) is listed as endangered under the federal ESA and is listed as CRPR 1B.1. This species grows in much of the same habitat as Monterey spineflower. No robust spineflower were identified during field surveys (Insignia 2012b); however, there is potential for robust spineflower to be intermixed with Monterey spineflower in areas where Monterey spineflower is found.

Gairdner's Yampah. Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*) is a CRPR 4.2 plant. This perennial herb occurs in mesic areas in broad-leafed forest, chaparral, coastal prairie, valley and foothill grassland, and vernal pool habitats. The August 2011 rare plant survey identified ten potential Gairdner's yampah plants along the Northern Alignment approximately 100 feet northwest of new pole C-48 (Figure 3.4-3). The presence of Gairdner's yampah could not be confirmed because the plant had no leaves at the time of the survey, making it impossible to identify the subspecies of the plant (Insignia 2012b).

Monterey Pine. The Monterey pine (*Pinus radiata*) is a CRPR 1B.1 plant that is native to central coastal California where it grows in small populations in closed-cone coniferous forests and oak woodlands near the coast (USDA 2003). This species usually grows in deep sandy loams, often derived from marine sediments (USFS 2012). Mature Monterey pines have a rounded or flat-top canopy with glossy, dark green needles 2.5 to 6 inches long that grow in bundles of three (USDA 2003). Seeding varies every year, as cones require high temperatures to open (USDA 2003; USFS 2012). Monterey pine is present in the project corridor along the Cox-Freedom Segment (Figure 3.4-2: areas of Coastal Oak Woodlands).

Special-status Plant Species with a Moderate Potential to Occur in the Project Corridor

Santa Cruz Tarplant. Santa Cruz tarplant (*Holocarpha macradenia*) is listed as threatened under the federal ESA and endangered under the CESA. The species is listed as CRPR 1B.1. Suitable habitat for Santa Cruz tarplant includes coastal scrub and grassland areas with sandy soils. Several occurrences of this species have been recorded within 5 miles of the project corridor, with the nearest located within 0.25 miles west of the intersection of Pioneer View Road and Pioneers Road. There is suitable habitat along the southeast portions of the Northern Alignment, where pastures and other agricultural fields containing grassland habitats are more prevalent. Santa Cruz tarplants, however, were not observed within the project corridor during the rare plant surveys (Insignia 2012b).

Kellogg's Horkelia. Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*) is listed as a CRPR 1B.1 plant. Suitable habitat for Kellogg's horkelia includes areas with sandy soils in coastal scrub and chaparral habitats. Suitable sediment types and habitats were identified along the Northern Alignment approximately 650 feet west of the intersection of Pine Forest Drive and Downing Drive, although there are no known populations within the project corridor. Suitable habitat may also occur along the Cox-Freedom Segment where appropriate soil types are present. Several populations of the more common *Horkelia cuneata* ssp. *cuneata* were observed during the 2011 rare plant surveys; however, Kellogg's horkelia was not identified (Insignia 2012b).

Table 3.4-3: Description of the Eight Identified Populations of Monterey Spineflower within the Project Corridor

Location	Description
Existing Pole 43 and new Pole C-3/38	One small population of approximately 100 Monterey spineflowers was discovered during project surveys east of existing Pole 43 in annual grassland habitat with sandy soil. The population—approximately 0.19 acres—is located next to the riparian corridor associated with Corralitos Creek. This population is partially located within the new Pole C-3/38 work area.
Between existing Poles 65 and 67	A population of intermixed Monterey spineflower and diffuse spineflower (*Chorizanthe diffusa*) is present adjacent to existing Pole 65 and new Pole C-6/60, covering approximately 0.02 acres. Diffuse spineflower is not a special-status plant species. Approximately 10 percent of this population consists of Monterey spineflower. A population of Monterey spineflower was also found on both sides of Jingle Lane within the project corridor between existing Poles 65 and 66 and between new Poles C-6/60 and C-7/61, covering approximately 0.05 acres. The largest portion of this population (greater than 100 individuals) is located on the northwest side of Jingle Lane, and approximately 15 plants are present on the southeast side of Jingle Lane. This population is located in a roadside clearing between the road and ornamental hedges.
Between new Poles C-6/60 and C-7/62	A large population of more than 200 Monterey spineflower plants covering approximately 0.45 acres was found in the vicinity of existing Pole 66 and new Pole C-7/61. This population extends west to Potter Road. The majority of the Monterey spineflower individuals in this population are located north of the Northern Alignment. The Monterey spineflower populations between existing Poles 65 and 67 are partially located within work areas for existing Poles 65 and 66, which corresponds to the locations of new Poles C-6/60 and C-7/61.
Existing Pole 68 and new Pole C-7/63	A population of more than 300 Monterey spineflowers was discovered southeast of existing Pole 68 and new Pole C-7/63 in a clearing near the intersection of Pine Forest Drive and Meadow Road. The population, which consisted of three large patches totaling approximately 0.54 acres, continues into the northeast half of Day Valley Cemetery outside of the project corridor. This population is not located within any project work areas or access routes.
Existing Pole 70 and new Pole C-7/65	A population of Monterey spineflower is present in the vicinity of existing Pole 70 and new Pole C-7/65. The population is grouped into three separate but adjacent locations. Monterey spineflower was observed between the end of Downing Road and existing Pole 70 and new Pole C-7/65. This section of the Monterey spineflower population covers approximately 0.31 acres. A second section of this Monterey spineflower population, covering approximately 0.22 acres, surrounds the base of existing Pole 70 in stabilized dune habitat. Thousands of Monterey spineflower plants were located in this area. Although some diffuse spineflower is intermixed in these sections of the population, the majority of the plants are Monterey spineflower. An additional group of Monterey spineflowers covering approximately 0.03 acres was located northwest and downslope of the existing pole. At this location, approximately 400 spineflower plants are present, approximately 75 percent of which are Monterey spineflower. The Monterey spineflower population is partially located within the existing Pole 70 and new Pole C-7/65 work area.
Existing Pole 71A and new Pole C-7/67	A single Monterey spineflower was observed on a road bank on the west side of Cox Road. This plant is located within the work area for existing Pole 71A.

Table 3.4-3 (*Continued*): Description of the Eight Identified Populations of Monterey Spineflower within the Project Corridor

Location	Description
Existing Pole 72	Two spineflower populations were discovered during project surveys north of existing Pole 72, approximately 700 feet west of the intersection of Cox Road and Leslie Lane. The two small populations are located on either side of the access road to the existing pole and cover a total of approximately 0.01 acres. Approximately 100 spineflower plants were located this area. Although some diffuse spineflower was intermixed in the population, approximately 90 percent of the plants are Monterey spineflower.
South and northwest of Rob Roy Substation	Spineflower populations were discovered during project surveys south and northwest of Rob Roy Substation. The two populations included a mix of diffuse spineflower and Monterey spineflower. Approximately 5 percent of the south population is Monterey spineflower, whereas the majority of the northwest population is Monterey spineflower. The south population is located within a portion of the existing Pole 121 and new Pole C- 9/91 work area and covers approximately 0.26 acres. The northwest population, which covers approximately 1.91 acres, mostly encompasses the work area for new Pole C-7/76A and the majority of the work area for new Pole C-7/76. Two additional small populations totaling approximately 0.03 acres were located along the access route for new Pole C-7/76. The spineflowers north of new Pole C-7/76 and along the dirt access road to this pole were identified during the August 2011 surveys. Although August is outside of the normal blooming period for Monterey spineflower, hundreds of dry plants were still present, and several were still blooming. The plants that were still in bloom were positively identified as Monterey spineflower.

Source: Insignia 2012b

Choris' Popcorn-flower. Choris' popcorn-flower (*Plagiobothrys chorisianus* var. *chorisianus*) is listed as a CRPR 1B.2 plant. This species inhabits mesic habitats characterized by seasonally inundated wetlands or vernal pools in coastal prairies and openings in coastal oak woodlands and coastal scrub. One population has been recorded approximately 1.7 miles southwest of the project corridor at the Watsonville Airport. Limited seasonally mesic grassland sites are scattered throughout the project corridor and may serve as suitable habitat. The seasonal wetland near Pioneer Road provides moderately suitable habitat for Choris' popcorn-flower due to the high level of disturbance from livestock grazing. Choris' popcorn-flower was not identified during surveys (Insignia 2012b).

Special-status Wildlife

Several special-status wildlife species have potential to occur within the project corridor. A preliminary literature search of the CNDDB occurrence records was conducted to identify special-status wildlife species that are known to occur within 5 miles of the project corridor. Habitat type and site conditions were used to determine the potential for these wildlife species to occur within the project corridor (Table 3.4-4).

Special-status Wildlife Species with a High Potential to Occur in the Project Corridor

Steelhead South-central DPS. Steelhead south-central DPS (*Oncorhynchus mykiss* ssp. *irideus*) is federally listed as threatened and is a California Species of Special Concern. It is a genetically

Table 3.4-4: Special-status Wildlife Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Potential to Occur
Invertebrates			
Ohlone tiger beetle (*Cicindela ohlone*)	FE	This species is associated with coastal terraces with native grassland or prairie habitat and shallow, pale, poorly drained clay or sandy soils that have a hard crust in summer months. It is endemic to Santa Cruz County.	None
Smith's blue butterfly (*Euphilotes enoptes* ssp. *smithii*)	FE	This species is closely associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties. Coast buckwheat (*Eriogonum latifolium*) and seacliff buckwheat (*Eriogonum parvifolium*) serve as host and nectar plants. Naked buckwheat (*Eriogonum nudum*) also serves as a nectar plant.	None
Zayante band-winged grasshopper (*Trimerotropis infantilis*)	FE	This species is found in sand hill habitat in Zayante soils formations in the Santa Cruz Mountains. Suitable habitat consists of sand parkland habitat containing Ponderosa pines (*Pinus ponderosa*) with a sparsely vegetated understory containing perennial herbs and grasses, including Ben Lomond wallflower (*Erysimum teretifolium*).	None
Fish			
Tidewater goby (*Eucyclogobius newberryi*)	FE SSC	This species requires brackish water found in coastal estuarine habitats and prefers sand bottoms with depths of 7 to 40 inches near emergent vegetation beds.	None
Steelhead Central California Coast distinct population segment (DPS) (*Oncorhynchus mykiss* ssp. *irideus*)	FT	This species requires cool, swift-moving streams with clean, unsilted gravel beds for spawning and egg incubation. Individuals within this DPS spawn during the winter only. The DPS range extends from the Russian River basin south to the Aptos Creek watershed.	None
Steelhead South-central DPS (*Oncorhynchus mykiss* ssp. *irideus*)	FT	This species requires cool, swift-moving streams with clean, unsilted gravel beds for spawning and egg incubation. Wild-born individuals within this DPS spawn during the winter only. The DPS ranges from the Pajaro River basin south to the Santa Maria River basin.	High (winter, spring)

Table 3.4-4 (*Continued*): Special-status Wildlife Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Potential to Occur
Reptiles			
Western pond turtle (*Actinemys marmorata*)	SSC	This species usually occurs in areas of calm, freshwater environments, but can also occur in brackish water and saltwater for short periods of time. It occupies a wide variety of aquatic habitats, including ponds, lakes, rivers, streams, marshes, sloughs, and wetlands. This species digs nests and occupies upland habitats in woodlands and grasslands, usually close to water.	Low
Legless lizard (Black/Silvery) (*Anniella pulchra*)	SSC	This species is typically found in a wide variety of habitats with sandy or loose, loamy soils. It tends to hide in leaf litter. The subspecies silvery legless lizard (*Anniella pulchra pulchra*) is traditionally thought to be found in coastal dunes from Morro Bay south to the mouth of Santa Maria River in San Luis Obispo County. The black legless lizard (*Anniella pulchra nigra*) subspecies is thought to primarily occur in beach dunes on the Monterey Peninsula and on the south coast of Monterey Bay (south of Salinas River) in Monterey County.	Low
Coast horned lizard (*Phrynosoma blainvillii*)	SSC	This species tends to live in drier, warmer climates in open sandy areas with sparse vegetation.	Low
Amphibians			
California tiger salamander (*Ambystoma californiense*)	FT CT	This species breeds in vernal pools and seasonal ponds, including stock ponds, but can inhabit a wide range of upland habitats, including woodlands and grasslands where dense vegetation, leaf litter, logs, and/or underground burrows large enough to provide cover exist. This species spends most of the year underground in small mammal burrows, but breeds after the first rains in late fall and early winter, when the wet season allows the salamanders to migrate up to 1 mile over several days to the nearest pond.	Low
Santa Cruz long-toed salamander (*Ambystoma macrodactylum* ssp. *croceum*)	FE CE FP	This species inhabits shallow, freshwater ponds and nearby woodland and coastal scrub. Breeding ponds are typically seasonal or must be free of permanent fish populations for larvae to reach adulthood. Adults migrate from upland small mammal burrows, decaying logs, or dense leaf litter during the rainy season to breed. They return after breeding to upland habitat typically consisting of coastal oak woodland and located within 700 feet of breeding ponds. This species has been confined to ponds and wetlands in southeast Santa Cruz County.	High

Table 3.4-4 (*Continued*): Special-status Wildlife Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Potential to Occur
Foothill yellow-legged frog (*Rana boylii*)	SSC	This species is found within, or directly adjacent to, cool stream habitats. It lays between 300 and 2,000 eggs on cobblestones submerged in water.	Low to None
California red-legged frog (*Rana draytonii*)	FT SSC	This species inhabits permanent ponds, freshwater seeps, marshes, and low-velocity streams in lowlands and foothills. It uses adjacent upland habitat for foraging and refuge during the rainy season and breeds during the wet season, from December to March. During this time, it lays eggs in a large cluster that is attached to plants near the water surface.	None
Birds			
Tricolored blackbird (*Agelaius tricolor*)	SSC	This species inhabits agricultural grain fields, ponds, sloughs, marshes, swamps, and estuaries. It also forages over agricultural cropland with alfalfa and rice, irrigated pasture, lightly grazed grasslands, and dairy feedlots. It nests in large, dense stands of tall emergent vegetation, such as cattails (*Typhus* spp.) or tules (*Scirpus* spp.). It nests from March to August.	Low
Golden eagle (*Aquila chrysaetos*)	FP	This species is found from Mexico to Alaska. It generally occurs in the western United States in open country, prairies, tundra, open coniferous forest, and barren areas, especially in hilly or mountainous regions. This species typically nests in high locations. Nesting in the California region peaks in late February to March. The general nesting season spans from January to September.	Low
Long-eared owl (*Asio otis*)	SSC	Long-eared owl nests in abandoned crow, hawk, or magpie nests in mature live oak and riparian woodlands in coastal and foothill areas, but also occurs in desert riparian, woodland, and oasis habitats. Dense riparian and live oak thickets near meadow edges, woodland, forest habitats, and dense conifer stands at higher elevations are often used by this species. In winter, long-eared owls can be found roosting in small groups in dense, thick groves of trees scattered throughout the desert region and occasionally within the coast or foothill region. The species nests from February to July.	Low

Table 3.4-4 (*Continued*): Special-status Wildlife Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Potential to Occur
Burrowing owl (*Athene cunicularia*)	SSC	This species occurs in dry, open habitats such as grasslands and prairies with low-growing or no vegetation, where it occupies underground burrows, typically those of the California ground squirrel (*Spermophilus beecheyi*). It can also occur in open areas of farmland, levee banks, and other disturbed or managed habitats where burrows or burrow-like refuges, such as small-diameter pipes, rock piles with voids, or similar hollow spaces, are present. It nests from March through August. There are no breeding pairs of burrowing owl on the central coast of California from San Mateo to Ventura Counties. Only winter migrants may be found within the project area.	Low
Vaux's swift (*Chaetura vauxi*)	SSC	This species spends most of the day in the air foraging for insects. It nests in coniferous or mixed forest and forages in forest openings, particularly above streams. Nesting commonly occurs in hollow trees and occasionally in chimneys. In California, the range of the species generally follows the distribution of redwood trees. It nests from May through August.	Low
Northern harrier (*Circus cyaneus*)	SSC	This species forages over meadows, grasslands, rangelands, desert sinks, and freshwater emergent wetlands. This species nests in meadows and in both freshwater and saltwater open marshlands. It nests from April through July.	Low
California yellow warbler (*Dendroica petechia* ssp. *brewsteri*)	SSC	Yellow warbler is typically found in riparian or wetland areas near a source of water. This species prefers dense thickets of vegetation, such as oak woodlands, coniferous forests, willows, and cottonwoods. It is present in California from March to October. This species nests from April to August in dense, brushy riparian vegetation or shrubby montane vegetation.	Low
White-tailed kite (*Elanus leucurus*)	FP	This species builds nests in the tops of dense, medium- to large-sized trees located near open areas that are used for foraging. It nests from February to October.	Moderate
Yellow-breasted chat (*Icteria virens*)	SSC	Yellow-breasted chat prefer riparian habitat with a densely developed understory and an open canopy. Nesting habitat is usually restricted to the narrow border of streams, creeks, sloughs, and rivers. Common nesting habitat includes blackberry, willow, and wild grape. The species is a summer migrant, present from March to late September. Breeding occurs from late April to early August, with nesting occurring from May through August.	Low

Table 3.4-4 (*Continued*): Special-status Wildlife Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Potential to Occur
Loggerhead shrike (*Lanius ludovicianus*)	SSC	Loggerhead shrike frequents open habitats and uses shrubs, trees, posts, fences, and utility lines for perches, but can occasionally be observed in urban areas. Its highest densities occur in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Nesting occurs from as early as February to July.	Low
Bank swallow (*Riparia riparia*)	CT	This neo-tropical migrant nests in California from March to August. It nests within small holes in vertical finely textured clay or sandy cliffs or banks. Typically, these nests are found alongside large riparian systems in the Sacramento Valley, although scattered populations exist along the Pacific Coast from San Mateo County to Monterey County.	None
California clapper rail (*Rallus longirostris obsoletus*)	FE CE FP	The California clapper rail inhabits and nests in wetlands dominated by pickleweed (*Salicornia virginica*), bulrush (*Scirpus* spp.), and cordgrass (*Spartina folisa*). It nests from March through July.	None
Western snowy plover (*Charadrius alexandrines nivosus*)	FT SSC	Western snowy plovers typically forage for small invertebrates in wet or dry beach sand, among tide-cast kelp, and within low foredune vegetation. Some plovers use dry salt ponds and river gravel bars. The species winters primarily in coastal areas on beaches and tidal flats. The breeding season in the United States extends from March 1 through September 30. Clutches, which most commonly consist of three eggs, are laid in shallow scrapes or depressions in the sand. It nests from March through September.	None
Bald Eagle (*Haliaeetus leucocephalus*)	FP CE FD	Bald eagles generally nest within 1 mile of coastlines, rivers, and large lakes where there is an adequate food supply. Breeding typically occurs between January and August. It nests in tall trees with at least one perch with a clear view of the water, where they forage. Bald eagles show high nesting and roosting site fidelity. The species nests from January through August.	High
Mammals			
Pallid bat (*Antrozous pallidus*)	SSC	This species inhabits a wide range of habitats, including arid desert regions, oak savannah, shrub-steppe, and pine-oak woodlands; however, populations within the Monterey Bay area typically forage along riparian systems in oak woodland or redwood forest habitat. It roosts in caves, rock crevices, mines, hollow trees, buildings, and bridges. It forages almost exclusively for insects on the ground.	Moderate

Table 3.4-4 (*Continued*): Special-status Wildlife Species and Likelihood of Occurrence within the Project Corridor

Species Name	Status	Habitat Description	Potential to Occur
Townsend's western big-eared bat (*Corynorhinus townsendii*)	SSC	In California, this species is known to occupy limestone caves, lava tubes, hollow trees or tree cavities, and human-made structures in coastal lowlands, cultivated valleys, and nearby hills covered with mixed vegetation.	Low
Western red bat (*Lasiurus blossevillii*)	SSC	This species is found throughout the Central Valley and coastal California. It is associated with riparian habitats, particularly mature stands of cottonwood and sycamore, at elevations from sea level to approximately 6,000 feet. It roosts primarily in trees in riparian areas that are protected from above and open below (often willows and cottonwoods).	Moderate
San Francisco dusky-footed woodrat (*Neotoma fuscipes* ssp. *annectens*)	SSC	This species lives in forest and shrub habitats. It builds large, conspicuous houses of sticks and twigs reaching up to 6 feet in height.	High
American badger (*Taxidea taxus*)	SSC	This species requires uncultivated ground with friable soils to facilitate the digging of burrows. It prefers meadows, open forests, and grasslands and feeds primarily on small burrowing mammals, such as ground squirrels, gophers, and mice.	Low

Notes:

Federal listing codes:

FE: Federally Endangered Species
FT: Federally Threatened Species
FD: Federal Delisted Species

California listing codes:

CE: State-listed as Endangered
CT: State-listed as Threatened
FP: Fully Protected Species

California Department of Fish and Wildlife:

SSC: California Species of Special Concern

Insignia 2012a; CNDDB 2012; NatureServe 2012; Hamilton 2004; CDFW 2011a; CDFW 2011b; Western Field Ornithologists 2008; Verner & Boss, coords. 1980; MNFI 2007; Texas A&M 2012; USFWS 2012a; USFWS 2012b.

distinct segment of steelhead located in the range from the Pajaro River basin in Santa Cruz County south to the Santa Maria River basin in Santa Barbara County. The south-central DPS is anadromous and thus spends a portion of its lifecycle in freshwater environments and a portion of its lifecycle in saltwater environments. Steelhead south-central DPS are a winter-run population, typically remaining in the ocean until sometime between November and April, when they return to freshwater streams to spawn. After spawning, adults migrate back to the ocean (Insignia 2012a).

Habitat for steelhead south-central DPS is found in Corralitos Creek, a large seasonal creek. Known spawning habitat occurs in Corralitos Creek as well as two upstream tributaries, Brown Creek and Shingle Mill Gulch. Corralitos Creek is seasonal downstream of a diversion dam

located upstream of its confluence with Brown Creek as a result of drought conditions and/or groundwater pumping for agricultural use. The proposed power line spans Corralitos Creek downstream of this confluence, and crosses Corralitos Creek between two poles, as shown on Figures 2.4-5 and Figure 2.4-6. The existing and new poles are not located in the creek or riparian corridor. Because this lower segment of the main stem of Corralitos Creek is seasonal, steelhead would only be expected to occur in Corralitos Creek near the project corridor when water is present, typically in winter to late spring (Insignia 2012a).

Santa Cruz Long-toed Salamander. The Santa Cruz long-toed salamander is a federally and state endangered and state Fully Protected species.

Life History. The Santa Cruz long-toed salamander is a small salamander (ranging from 2.5 to 5.5 inches in length) that inhabits oak woodland, willow riparian, and other wet habitats. Terrestrial individuals feed primarily on sow bugs, earthworms, and other invertebrates.

The Santa Cruz long-toed salamander breeds in seasonal, semi-permanent ponds and some perennial ponds and sloughs. Single eggs are deposited on submergent vegetation. Larvae feed on a wide variety of aquatic organisms, including invertebrates and tree frog tadpoles. Larvae require approximately 90 to 150 days to metamorphose. Growth rate and timing of metamorphosis vary with water temperature, food levels, larval densities, and hydroperiod (the period during which surface water is present). Metamorphs settle under debris or underground in the vicinity of the breeding site after metamorphosis until late summer or fall rains incite outward-bound dispersal. Breeding sites generally lack exotic predators such as nonnative fish and American bullfrogs (*Lithobates catesbeianus*). The few perennial ponds that simultaneously support the salamander and invasive aquatic species have sufficient submergent and emergent vegetative cover to provide eggs and larvae with predator protection, although survivorship of larvae and recruitment (addition of surviving juveniles into an adult population) of metamorphs is presumably low (Biosearch 2012b).

The Santa Cruz long-toed salamander remains underground in rodent burrows and other moist refugia during the summer months and emerges during rainy nights in the fall and winter to migrate to breeding ponds. Santa Cruz long-toed salamanders use uplands to travel between breeding and over-summering habitats. Habitats used by over-summering Santa Cruz long-toed salamander include coast live oak woodland, willow riparian, mixed evergreen forest, and coastal scrub. The species will readily cross grassland, even though grassland does not provide over-summering habitat, and is therefore likely to use grassland cover-sites as needed for days or weeks during breeding migrations interrupted by episodic rain events (Biosearch 2012b).

Santa Cruz long-toed salamander migration and over-summering activities have been subject to limited studies. There is anecdotal evidence for movements of approximately 1 mile and there are records of Santa Cruz long-toed salamanders 0.8 mile from the nearest known breeding pond; however, the furthest documented movements of marked Santa Cruz long-toed salamander between breeding sites and upland habitats is 0.6 miles (Reed 1979 [Valencia Lagoon]; Ruth 1989 [Seascape Uplands]; Ruth 1994 [Willow Canyon]). The most comprehensive

study to date of upland movements of Santa Cruz long-toed salamander was conducted at Seascape Uplands during the 1987-1988 breeding season (Ruth 1989). Ninety-five percent of salamanders were found within 0.49 miles of their breeding pond, although the results should be used with caution because the study was not originally designed for this type of analysis, and traps were not evenly distributed at various distances. Three previous studies that were performed within 1.5 miles of Rob Roy Substation found that the greatest traveling distance by Santa Cruz long-toed salamander to or from breeding ponds was 0.6 miles (Biosearch 2012b).

Occurrence in the Project Corridor. The project corridor falls within migration (and potentially over-summering habitat) for the Freedom meta-population of Santa Cruz long-toed salamander. The Freedom meta-population includes five known breeding ponds:

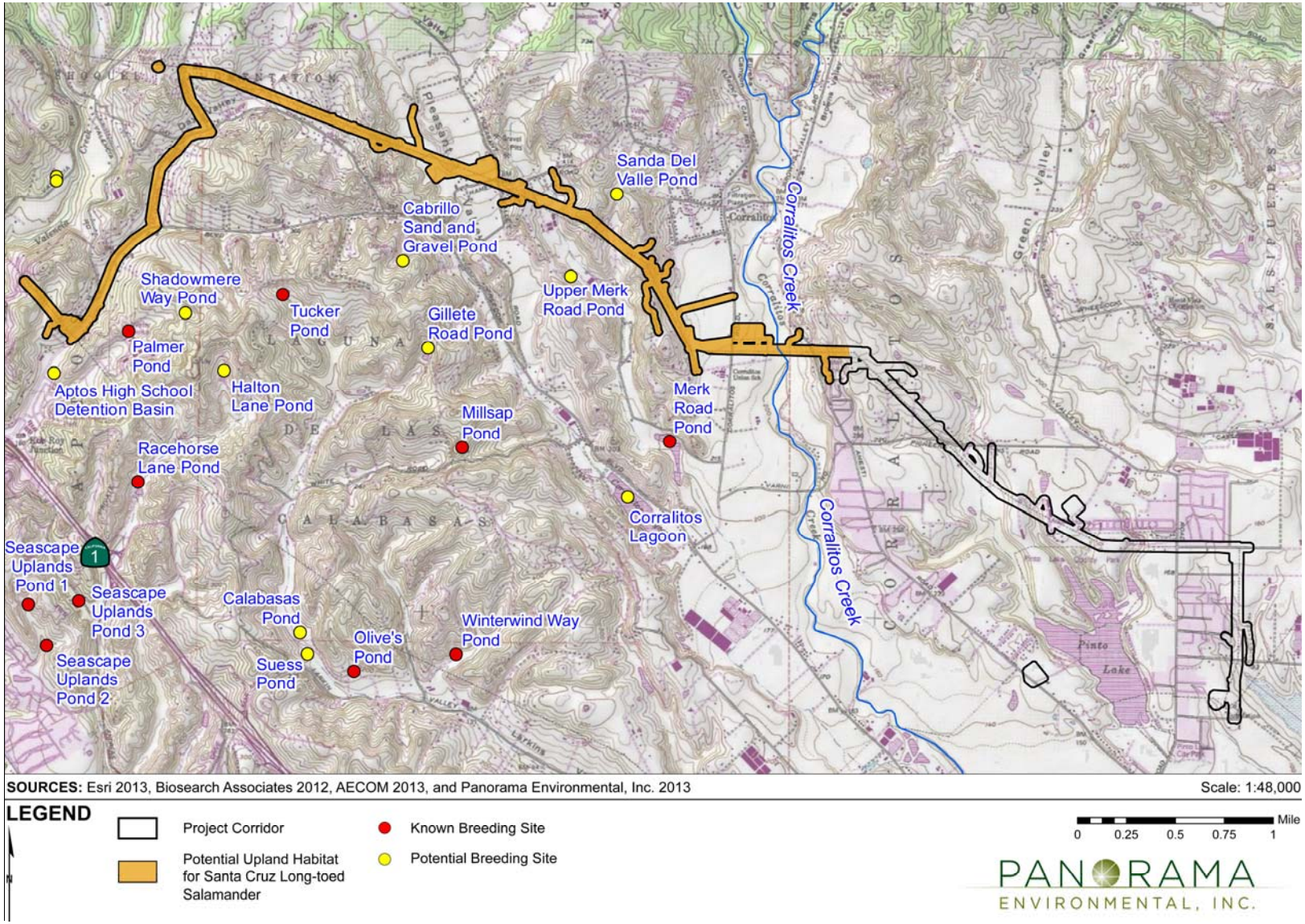
- Tucker Pond
- Palmer Pond
- Racehorse Lane Pond
- Merk Pond
- Millsap Pond

Merk Pond marks the easternmost known breeding site and Tucker Pond is the northernmost known breeding site. The portion of the project corridor east of Corralitos Creek (east of Merk Pond), between Green Valley Substation and pole E-42/C-38 is considered outside of the range of the species and greater than 1 mile from the nearest breeding pond (AECOM 2013a). Remaining uplands east of pole E-42/C-38 do not support the necessary aquatic or vegetated habitats and are extensively fragmented and degraded by proximity to agricultural and urban areas (Biosearch 2012b; AECOM 2013a). Four of the five known breeding sites are located within 1 mile of the project corridor (Tucker Pond, Merk Pond, Palmer Pond, and Racehorse Lane Pond) and 11 additional potential breeding ponds are located within 1 mile of the project corridor (Figure 3.4-5).

The entire portion of the Northern Alignment west of pole E-42/C-38 (generally west of Corralitos Creek) and all of the Cox-Freedom Segment are considered in this analysis as being within the range of the Santa Cruz long-toed salamander, although the subspecies has not been observed north of Freedom Boulevard in the Pleasant Valley or Day Valley areas (Biosearch 2012b). All proposed project workspaces west of pole E-42/C-38 were visited on foot by qualified biologists (AECOM 2013a). The results of this assessment are presented in Appendix B. Each of 131 proposed work sites and access roads west of pole E-42/C-38 was classified as providing one of the following habitat types:

- Upland habitat
  - Areas containing oak woodland, willow riparian, or dense coastal scrub vegetation communities; may be occupied by Santa Cruz long-toed salamander year-round

Figure 3.4-5: Santa Cruz Long-toed Salamander Known and Potential Breeding Ponds



  - 37 work areas and 5 overland access routes contain suitable upland habitats. Work areas between poles E-49 and E-53, E-61 and E-63, and E-101 through E-120, include suitable upland habitat with continuous vegetated corridors between the work area and a known breeding pond. The remainder of the suitable upland habitat in the project area is fragmented and not contiguous to known breeding ponds (AECOM 2013a).
  - A summary of suitable upland habitat within work areas and overland access routes is provided in Table 3.4-5.
- Dispersal habitat
  - Open habitats containing grassland, open coastal scrub, and oak savanna vegetation communities; may provide refugia during the rainy season, but lack suitable cover or habitat characteristics to be used during the dry season.
  - 73 work areas and access roads are located in areas only suitable for dispersal.
- Disturbed dispersal habitat
  - Ruderal roadsides, active agricultural areas, and other areas denuded of natural vegetation; may be traversed by Santa Cruz long-toed salamander but do not provide any underground refugia.
  - 16 sites located east of Merk Pond have been disturbed by large contiguous tracts of agriculture and include disturbed dispersal habitat and were determined to be unsuitable for the species.

Existing and Future Studies. PG&E, in conjunction with USFWS, is proposing to conduct scientific studies to address the migration of the Santa Cruz long-toed salamander away from known and potential breeding ponds near their transmission facilities. These studies will be undertaken under the guidance of CDFW and USFWS. The studies will involve pit fall trapping per protocols established by USFWS and in compliance with the recovery efforts for the species.

Other studies associated with restoration projects are ongoing, including Recovery Plan (USFWS 1999) 5-year monitoring, the Tucker Pond HCP project, the Millsap Pond Restoration Project, the Willow Canyon Restoration Project, and the Seascape Uplands Preserve and HCP.

Regulatory Environment. The federal ESA and its implementing regulations prohibit take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10(a)(1)(B) of the ESA (16 U.S.C. § 1538 (a)(1)). The federal ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Federal regulation 50 CFR 17.3 further defines the term harm in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Section 10(a) of the ESA establishes a process for obtaining an incidental take permit, which authorizes nonfederal entities to incidentally take federally listed wildlife or fish subject to certain conditions.

Table 3.4-5: Work Areas and Overland Access Routes with Suitable Upland Habitat for Santa Cruz Long-toed Salamander

Pole Work Areas				
PG&E Site	**Type**	**Notes/Habitat Type**	**Assessment of SCLTS Habitat within Project Site Boundaries[1]**	**Acres**
C-45/E-49	Pole work area	Coastal scrub	Site contains suitable upland habitat with connectivity to relatively undisturbed lands extending southwest to Merk Pond.	0.25
C-46	Pole work area	Coastal scrub	Site provides suitable upland habitat with connectivity to Merk Pond.	0.18
E-50	Pole work area	Coastal scrub	Site provides suitable upland habitat with connectivity to Merk Pond.	0.25
C-47/E-51	Pole work area	Oak woodland/Eucalyptus woodland/coastal scrub	Site provides suitable upland habitat with connectivity to breeding habitat via relatively undisturbed lands to the south.	0.25
C-49/E-53	Pole work area	Oak woodland	Site provides suitable upland habitat as well as extensive connectivity with relatively undisturbed habitat and known/potential breeding ponds.	0.25
C-50/E-54	Pole work area	Annual Grassland/coastal scrub	Site provides upland habitat but lacks a native understory; extensive connectivity with relatively undisturbed lands to the southwest.	0.25
C-51/E-55	Pole work area	Annual grassland/coastal scrub/oak woodland	Site provides suitable upland habitat; extensive connectivity with relatively undisturbed lands to south, southwest and east.	0.25
C-53/E-57	Pole work area	Oak woodland	Marginal and limited upland habitat and suitable dispersal habitat.	0.14

Table 3.4-5 (*Continued*): Work Areas and Overland Access Routes with Suitable Upland Habitat for Santa Cruz Long-toed Salamander

Pull site between C-54 and C-55	Tension pull site	Agriculture/oak woodland	A small portion of the site that supports oak woodland provides upland habitat, despite a relatively open understory with some nonnative under-story species; the remainder of the site in the orchard does not provide upland habitat but does provide disturbed dispersal habitat.	2.52
C-55/E-59	Pole work area	Grassland/coastal scrub/oak woodland	Site provides upland habitat on a relatively undisturbed low hill; work area is surrounded by orchards and fields.	0.25
C-57/E-61	Pole work area	Oak woodland	Site provides upland habitat due to the presence of undisturbed oak woodland with intact understory vegetation.	0.25
C-58/E-62	Pole work area	Coastal scrub	Site provides upland habitat due to the presence of suitable coastal scrub and adjacent oak woodlands.	0.25
C-59/E-63	Pole work area	Oak woodland/grassland	Site provides upland habitat due to the presence of suitable vegetation and some habitat connectivity.	0.18
C-75	Pole work area	Oak woodland	Site provides upland habitat; site is located at the base of a mesic, north-facing slope with extensive appropriate habitat to south.	0.01
CD-86/ E-86	Pole work area	Ruderal (roadside)/oak woodland	Oak woodland within portion of work area provides suitable habitat. Remainder of site provides disturbed dispersal habitat.	0.01
C-78/E-88	Pole work area	Ruderal (roadside)/oak woodland	Oak woodland within portion of work area provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	0.01

Table 3.4-5 (*Continued*): Work Areas and Overland Access Routes with Suitable Upland Habitat for Santa Cruz Long-toed Salamander				
CD-89/ E-89	Pole work area	Ruderal (roadside)/willow riparian	Willow riparian within portion of work area provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	0.01
CD-92/ E-92	Pole work area	Ruderal (roadside)/oak woodland	Oak trees are present in the western part of the work area, with a dense understory that provides upland habitat. Remainder of site provides disturbed dispersal habitat.	0.01
C-80	Pole work area	Ruderal (roadside)/oak woodland	Oak trees are present in the western part of the work area, which provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	0.01
C-81s	Pole work area	Ruderal (roadside)/oak woodland	Work area with live oaks and a suitable understory that provides upland habitat. Remainder of site provides disturbed dispersal habitat.	0.01
CD-100/ E-100	Pole work area	Ruderal (roadside)/oak woodland	Work area under canopy of live oaks which provides suitable upland habitat.	0.01
CD-101/ E-101	Pole work area	Ruderal (roadside)/oak woodland/willow riparian	Northern edge of work area supports oaks and willows with an appropriate understory and provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	0.01
CD-112	Pole work area	Ruderal (roadside)/oak woodland	Western edge of work area supports oak woodland, which provides suitable upland habitat. Remainder of site provides dispersal habitat.	0.01
C-92s	Pole work area	Oak woodland	Site is under canopy of large oak tree. Shaded conditions and understory provide suitable upland habitat.	0.01
C-92/E-113	Pole work area	Ruderal (roadside)/oak woodland	Western part of work area supports oak woodland, which provides upland habitat. Remainder of site provides disturbed dispersal habitat.	0.01

Table 3.4-5 (*Continued*): Work Areas and Overland Access Routes with Suitable Upland Habitat for Santa Cruz Long-toed Salamander				
C-93s	Pole work area	Oak woodland/willow riparian	Site is along a roadside ditch, which supports oaks and willows with a dense understory. Site provides suitable upland habitat.	0.01
C-93/E-115	Pole work area	Ruderal (roadside)/oak woodland	Western part of work area supports oak woodland, which provides upland habitat. Remainder of site provides disturbed dispersal habitat.	0.01
C-94s	Pole work area	Ruderal (roadside)/willow riparian	Site is along a roadside ditch, which supports oaks and willows with a dense understory. Site provides suitable upland habitat.	0.01
C-94	Pole work area	Grassland/oak woodland	Northern portion of site supports oak woodland with a dense understory and a complete canopy, which provides suitable upland habitat. Remainder of site contains disturbed dispersal habitat.	0.01
C-95/E-120	Pole work area	Grassland/Monterey pine/ Acacia/ oak woodland	Eastern portion of site supports a mixed woodland with moderately dense understory and a complete canopy, which provides SCLTS upland habitat; Western portion of site is grassland that provides suitable dispersal habitat only.	0.15
C-75A/C-96	Pole work area	Oak woodland	Site supports oak woodland with areas of moderately dense understory and a complete canopy. Site provides suitable upland habitat.	0.16
RR-PS C-76A	Pole work area	Coastal scrub/oak woodland	Site supports oak woodland with areas of moderately dense understory. Site provides suitable upland habitat.	0.18

Table 3.4-5 (*Continued*): Work Areas and Overland Access Routes with Suitable Upland Habitat for Santa Cruz Long-toed Salamander				
GV(RR)-PS C-76-C	Pole work area	Coastal scrub/oak woodland	Oak woodland with moderately dense understory, which provides suitable upland habitat; remainder of site provides dispersal habitat only.	0.18
GV(RR)-PS E-77	Pole work area	Oak woodland	Site is in oak woodland with a relatively dense understory, which provides suitable upland habitat.	0.048
GV(RR)-PS E-78	Pole work area	Oak woodland	Site is in an isolated patch of oaks that provide upland habitat between houses.	0.048
GV-RR#1 E-75	Pole work area	Ruderal/oak woodland	Northern part of work area supports dense vegetation that provides suitable upland habitat. Remainder of site provides dispersal habitat.	0.048
Rob Roy Substation	Cut and fill area	Ruderal/coastal scrub/oak woodland/non-native pines	Eastern part of work area supports oaks with a sparse understory considered suitable upland habitat.	0.04
Rob Roy Substation	Substation Work Area	Ruderal/coastal scrub/oak woodland/non-native pines	Eastern part of work area supports oaks with a sparse understory considered suitable upland habitat.	0.25
			Total Acreage (Work Areas)	**6.53**
Overland Access Routes				
Access to Pole		**Notes/Habitat Type**	**Assessment of SCLTS Habitat within Project Site Boundaries[1]**	**Acres**
C-46		Coastal scrub	The habitat is similar to that present at poles E-50 and C-46, which is provides suitable upland and dispersal habitats.	0.02
C-49		Oak woodland/grassland	Access route provides dispersal habitat and small amount of upland habitat associated with oak woodlands near C-49.	0.06
C-57		Oak woodland/coastal scrub	Access route provides upland habitat; route follows old road cut, portions of which are heavily vegetated and have reverted to native under-story.	0.07

Table 3.4-5 (*Continued*): Work Areas and Overland Access Routes with Suitable Upland Habitat for Santa Cruz Long-toed Salamander

C-58	Oak woodland/Eucalyptus forest	Access route provides upland habitat; route follows old road cut, portions of which are heavily vegetated and have reverted to native under-story.	0.79
GV(RR)-PS E-77	Ruderal (roadside)/oak woodland	Route passes through patches of suitable upland and dispersal habitats (oak woodland). Remainder of route passes through suitable dispersal habitat.	No impact because site would be accessed on foot
		Total Acreage (Overland Access Routes)	**0.94**

Note

[1] Description of upland and dispersal habitats

SCLTS upland habitat = Woodland and scrub habitats in which SCLTS can be found year-round; this habitat provides underground refugia during the dry season (typically 15 April–15 October); SCLTS could take refuge in such locations. Upland habitat is also considered to be dispersal habitat.

SCLTS dispersal habitat = Open native habitats such as grassland and oak savannah supporting aboveground refuge during juvenile dispersal or adult breeding migration in the wet season (typically 15 October–15 April). These areas would not be utilized as refuge sites during the dry season.

SCLTS disturbed dispersal habitat = Converted lands including roads, disked fields, landscaped yards and other areas cleared of vegetation that do not provide suitable breeding or upland habitat. SCLTS can be encountered aboveground during juvenile dispersal or adult breeding migration in the wet season (typically 15 October–15 April).

Source: AECOM 2013a

Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." The Section 10 process for obtaining an incidental take permit has three primary phases: (1) the Habitat Conservation Plan (HCP) development phase; (2) the formal permit processing phase; and (3) the post-issuance phase. During the HCP development phase, the project applicant prepares a plan that integrates the proposed project or activity with the protection of listed species. An HCP submitted in support of an incidental take permit (ITP) application must include the following information:

- Impacts likely to result from the proposed taking of the species for which permit coverage is requested
- Measures that will be implemented to monitor, minimize, and mitigate impacts
- Funding that will be made available to undertake such measures and procedures to deal with unforeseen circumstances
- Alternative actions considered that would not result in take
- Additional measures USFWS may require as necessary or appropriate for purposes of the plan

USFWS issued a Draft Revised Recovery Plan for the Santa Cruz Long-toed Salamander (USFWS 1999). The plan identifies the known locations and meta-populations of the species. The actions identified in the plan to recover the populations of the species include:

- Perpetuating self-sustaining populations of breeding salamanders at known locations through reducing human-related mortality and monitoring populations
- Conducting surveys in the general area of each known population to locate additional breeding sites and upland habitat areas and identifying parcels that would be appropriate for conservation agreements or easements, acquisition, or other management actions
- Assessing the distribution and population status of the salamander at other known sites and at new locations and planning and implementing appropriate management strategies and actions
- Expanding public education and information programs used by USFWS and CDFW

Five-year reviews are prepared under the Recovery Plan with the last review performed in 2009. USFWS uses information from the Recovery Plan, survey information from experts who have been monitoring various localities of this species, and the CNDDB maintained by CDFW. The Recovery Plan and personal communications with experts were the primary sources of information used to update the status and threats for the species. Studies and progress made in the 5-year review included the management of one pond (Tucker Pond) through an HCP. Several studies were performed on the salamander and the pond and habitat is being conserved and monitored pursuant to the terms of the HCP. A second pond, Millsap Pond, was acquired by the Trust for Public Land in 2007, and subsequently transferred to CDFW. Management options are currently being explored at this location, and studies to understand the population were also undertaken (USFWS 2009).

The Santa Cruz long-toed salamander is also a state endangered species. Section 2080 of the Fish and Game Code prohibits "take" of any species that the commission determines to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CESA allows for take incidental to otherwise lawful development projects under a state Incidental Take Permit; however, the salamander is also listed as a fully protected species. Fully protected amphibians and reptiles are protected pursuant to Section 5050, which is much more restrictive in the allowance of take. Issuance of incidental take is only permitted for scientific research via a Memorandum of Understanding process, or for development projects with the preparation of a Natural Community Conservation Plan (NCCP) pursuant to Section 2835 of the Fish and Game Code. An NCCP can be prepared as a joint document with an HCP.

An NCCP includes the following information:

- The natural communities and geographic scope of the plan and the species to be conserved and managed within the plan area

- The activities or categories of activities anticipated to be authorized by plan participants, which will result in the taking of species pursuant to Section 2835 within the plan area
- Scientifically sound principles of conservation biology used in formulating those provisions of the plan to protect, restore, or enhance the ecosystems, natural communities, and habitat types within the plan area
- The conservation strategy, including activities and measures to be undertaken, compatible uses, an implementing schedule, and measurable goals to ensure that conservation measures are carried out in accordance with the schedule and goals of the plan
- A monitoring program that provides periodic evaluations of monitoring results and other new information to be used
- Adaptive management plans that provide for the implementation of an adaptive management program that establishes a flexible, iterative approach to long-term management of natural communities, habitat types, and species within the plan area
- The funding source to ensure that conservation actions identified are carried out in accordance with the schedule
- Assurances that provide for the long-term reconciliation of new land development in the planning area and the conservation and protection of endangered species
- An Implementation Agreement that defines obligations and is legally binding

*Bald Eagle***.** The bald eagle (*Haliaeetus leucocephalus*) is a California endangered and Fully Protected species. It breeds most frequently in areas near water where it can find food, such as fish and birds. Nests are usually located in tall trees or cliffs located near water, and eagles may use the same nest each year or may alternate their nesting sites. Wintering areas vary, such that some wintering areas are located near open water whereas others are near little or no water if there are abundant upland food sources nearby. Bald eagles typically roost in the winter in larger trees (NatureServe 2012). A pair of nesting bald eagles was located in a grove of eucalyptus trees near Pinto Lake County Park in spring 2012. The nest location is located 0.5 miles from the closest edge of the project corridor; however, the proximity of the bald eagles to the project corridor and the possibility that a bald eagle will return to its previous nesting location means there is a high likelihood that a bald eagle would occur near the project corridor.

San Francisco Dusky-footed Woodrat. The San Francisco dusky-footed woodrat (*Neotoma fuscipes* ssp. *annectens*) is a California Species of Special Concern. It lives in forest and shrub habitats. This subspecies of woodrat builds nests or houses out of sticks, branches, and twigs, and often collects and incorporates anthropogenic litter into the structures. The houses are up to 6 feet tall and contain multiple chambers (Insignia 2012a). The houses can simultaneously provide shelter to other small animals (MROSD 2011). Although there are no documented occurrences of the species in the CNDDB within 5 miles of the project corridor, biologists observed two woodrat houses in the project corridor approximately 1,350 feet northeast of the intersection of Corralitos

Road and Skylark Lane during a March 2011 field survey. It is unknown if the houses were or are currently occupied by San Francisco dusky-footed woodrats (Insignia 2012a).

Special-status Wildlife Species with a Moderate Potential to Occur in the Project Corridor

White-tailed Kite. White-tailed kite (*Elanus leucurus*) is a state Fully Protected species. It is found in the Central Valley, southern coastal areas, and the San Francisco Bay Area, but is rare or absent in other locations in California. White-tailed kites favor agricultural areas, grasslands, marshes, savannas, and other open land or sparsely wooded areas. They feed mainly on rodents, and patrol over lowland scrub or grassland. They roost communally in groups of up to 100 outside of the breeding season. During breeding season, white-tailed kites build a platform of sticks in a tree or bush. The project corridor is located within the range of white-tailed kites; however, the CNDDB, which tracks only nesting locations of the white-tailed kite, has no recorded occurrences of this species within 5 miles of the project corridor. Suitable foraging and moderate nesting habitat are nonetheless present within the project corridor. Infrequent unconfirmed observations of white-tailed kites have been reported near Pinto Lake (Insignia 2012a). The sightings in combination with the presence of suitable foraging habitat means that this species has a moderate potential to nest and forage in the project corridor.

Pallid Bat. Pallid bat (*Antrozous pallidus*) is a California Species of Special Concern. It occurs throughout the western portion of North America. Pallid bats inhabit a wide range of habitats, including arid desert regions, oak savannah, shrub-steppe, and pine-oak woodlands. Pallid bat populations around Monterey Bay usually forage along riparian systems in oak woodland or redwood forest. Pallid bats forage for insect prey almost exclusively on the ground, making them vulnerable to injury and terrestrial predators, such as snakes, cats, foxes, coyotes, and raccoons. Males and females can be found roosting together or in single-sex colonies during the summer. Pallid bat roosts are located in caves, rock crevices, mines, hollow trees, snags, buildings, and bridges, with breeding occurring from October through February. Maternity colonies are initiated in April. Gestation takes approximately two months, with birth occurring late April through July. Pallid bats are susceptible to mild disturbances, which cause them to abandon their roosting sites, and can be negatively impacted by pesticide use that offsets prey populations. Suitable roosting habitat for this species may be present throughout the project corridor, as old farm buildings and other potential habitat are relatively common in the area. Two occurrences of this species have also been recorded within 5 miles of the project corridor (Insignia 2012a). There is a moderate potential for this species to occur in the project corridor.

Western Red Bat. Western red bat (*Lasiurus blossevillii*) is a California Species of Special Concern. The western red bat in California seasonally shifts between the Central Valley and the Sacramento Valley during the spring and summer, and the coastal region in the fall and winter. Western red bats are generally found in riparian areas at mid-elevations (2,400 to 7,200 feet above sea level) in broadleaf woodlands where they roost during the day. This species is also known to roost in vegetation along rivers and along the borders of agricultural and urban areas with mature trees. They are nocturnal, foraging one to two hours after sunset and often hunting until sunrise. They feed on moths, beetles, flying ants, and occasionally crickets. Western red bats usually feed near their roosts and go no farther than necessary for water. They mate from

August through October, but fertilization does not occur until spring. Gestation is approximately 65 to 80 days. Adult and juvenile western red bats are generally solitary; however, individuals may form small groups during migration. The primary threats to this species are habitat loss and herbicide and pesticide use in orchards and other agricultural areas. Predators of this species include jays, crows, kestrels, hawks, owls, snakes, rats, and cats. The CNDDB search results did not include documented occurrences of this species within 5 miles of the project corridor; however, riparian habitat in the project corridor may provide suitable roosting and foraging habitat. There is thus a moderate potential for this species to occur in the project corridor.

California Red-legged Frog. No occurrences of California red-legged frog (*Rana draytonii*), a federally threatened species and California Species of Special Concern, were recorded within the project corridor or within 1 mile of the project corridor. Occurrences are known in southern Santa Cruz County: 14 occurrences of this species have been recorded within 5 miles of the project corridor. Suitable habitat is present in several localities in the area, typically in the form of stock ponds. Stock ponds are common because of the agricultural use of the area around the project corridor, although only two are located directly adjacent to the project corridor (Insignia 2012a).

Several ponds in the surrounding area suspected of being suitable California red-legged frog habitat were surveyed following the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (UFSWS 2005) to determine whether California red-legged frogs were present within the project corridor. Protocol-level surveys at nine area ponds commenced on May 9, 2011, and were completed on July 21, 2011, covering the breeding and non-breeding seasons. These surveys included three daytime surveys and five nighttime surveys. In some instances, daytime surveys were conducted by dip-netting or seining (Insignia 2011). These surveys failed to confirm the presence of this species. All of these ponds were found to contain at least two nonnative species known to predate on California red-legged frogs, including bullfrogs (*Lithobates catesbeianus*), mosquito fish (*Gambusia affinis*), crayfish (*Procambarus clarkii*), and/or largemouth bass (*Micropterus salmoides*) (Insignia 2011). No California red-legged frogs are thus expected to occur in the project corridor.

Sensitive Habitats

Overview

The CNDDB search results identified central dune scrub, coastal and valley freshwater marsh, and northern coastal salt marsh as sensitive habitats within a 5-mile radius of the project corridor. Santa Cruz County General Plan Conservation and Open Space Element Policy 5.1.2 identifies coastal scrub as a sensitive habitat. Only Coastal Scrub and Riparian and Wetland Habitat are found within 0.25 miles of the project corridor.

Coastal Scrub

Coastal scrub communities in the project corridor are typically dominated by coyote brush (*Baccharis pilularis*), manzanita, ceanothus (*Ceanothus* spp.), coffeeberry, toyon, madrone, poison oak, and nonnative broom, as well as immature coast live oak, which develops in a shrub form.

Brush thickets of these species can reach up to 10 feet in height and are typically impenetrable. This community most commonly develops beneath existing power lines in coastal oak woodland areas where vegetation management has promoted the growth of shrub-forming species and hindered the growth of canopy-forming species such as coast live oak. It also forms in more xeric (very dry) or warmer hillsides where mature oak development is otherwise stunted. Coastal scrub is scattered throughout the project corridor, as shown on Figures 3.4-1 and 3.4-2.

Riparian and Wetland Habitat

Several types of riparian and wetland habitat, which are generally considered sensitive habitat, occur near and in the project corridor. Coastal riparian habitat, freshwater emergent wetlands, seasonal wetlands, and stock ponds are described in general above, under Habitat Types/Vegetation Communities. Coastal riparian habitat communities in the project corridor are often heavily impacted by livestock grazing and agricultural runoff but occur throughout the project corridor, concentrated in the eastern portion. Freshwater emergent wetlands exist within the study area in several locations, as shown on Figures 3.4-1 and 3.4-2. There are potential wetlands near the Amesti Contractor Storage Yard site, although they are located at least 100 feet away from proposed staging and storage areas (Insignia 2012c). There are potential wetland and riparian features at the Corralitos Road staging area. These include an occurrence of smooth scouring-rush, a perennial native wetland species, along the southern edge and at the southwest corner of the field, and a drainage ditch at the southeast corner of the site that was observed to drain eastward off the site and into Corralitos Creek. At the time the drainage ditch was surveyed in 2011, the ditch and the immediate vicinity of the ditch were largely unvegetated but for mosses and scattered weeds. Other ditches drained to overland features in the field (Insignia 2012d).

The U.S. Army Corps of Engineers (USACE) assumes jurisdiction over waters of the U.S. (WoUS) including wetlands. USACE jurisdiction within wetlands is defined using the wetland 1987 delineation manual (USACE 1987) and the appropriate regional supplement. USACE jurisdiction for WoUS, other than wetlands, is defined by the presence of an ordinary high water mark (OHWM). The OHWM identifies the location of the 2-year return flow and is often distinguished by the presence of debris along the channel bank. CDFW separately assumes jurisdiction over Waters of the State (WoS). WoS include riparian areas up to the outer (landward) edge of the drip line of any water-dependent vegetation (CDFW 2013).

A wetland delineation was conducted for the project in June 2013 (AECOM 2013b). Approximately 4.47 acres within the project corridor where work could occur were evaluated for the presence of WoUS including Location E-30 on Pioneer Road and a culvert location on Kliewer Lane. The delineation was performed using *The Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008). The wetland delineation study area contains four potentially jurisdictional water features (Table 3.4-6).

Table 3.4-6: Potentially Jurisdictional Waters	
Water Feature	**Acres**
Seasonal Wetland 1	0.015
Relatively Permanent Water 1	0.033
Stock Pond 1	0.195
Stock Pond 2	0.189
Total Potentially Jurisdictional Features	**0.43**

Source: AECOM 2013b

Critical Habitat

Critical habitat under the ESA generally consists of: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species (NOAA 2005). Critical habitat areas were identified by review of USFWS maps of critical habitat for federally listed species that could occur within the project corridor.

A section of the Cox-Freedom Segment is located adjacent to critical habitat for Monterey spineflower, including a very small overlap with the edge of the 300 foot project corridor. Critical habitats for robust spineflower, steelhead central California coast DPS, and Santa Cruz tarplant are located within 1 mile of the project corridor, but do not overlap with the corridor (Insignia 2012a). These critical habitat areas are shown on Figures 3.4-8 and 3.4-9. The project crosses critical habitat for steelhead south-central DPS at Corralitos Creek between the two poles located approximately 1,500 feet south of the intersection of Amesti Lane and Poppy Hills Road and approximately 1,050 feet north of the intersection of Corralitos Road and Skylark Lane, as shown on Figures 3.4-6 and 3.4-7 (Insignia 2012a).

Wildlife Corridors

Overview

In the vicinity of the proposed project, wildlife corridors are considered areas that connect suitable habitat at the local level in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. The area considered for wildlife corridors consists of areas adjacent to the project corridor. Natural features, such as canyon drainages, ridgelines, or areas with vegetation cover, provide corridors for wildlife travel. Wildlife corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate gene flow between populations (Insignia 2012a). Animal species, including mammals, birds, fish, amphibians, and reptiles, may all move through wildlife corridors.

Figure 3.4-6: Critical Habitat Areas in Proximity to the Project Corridor, Map 1

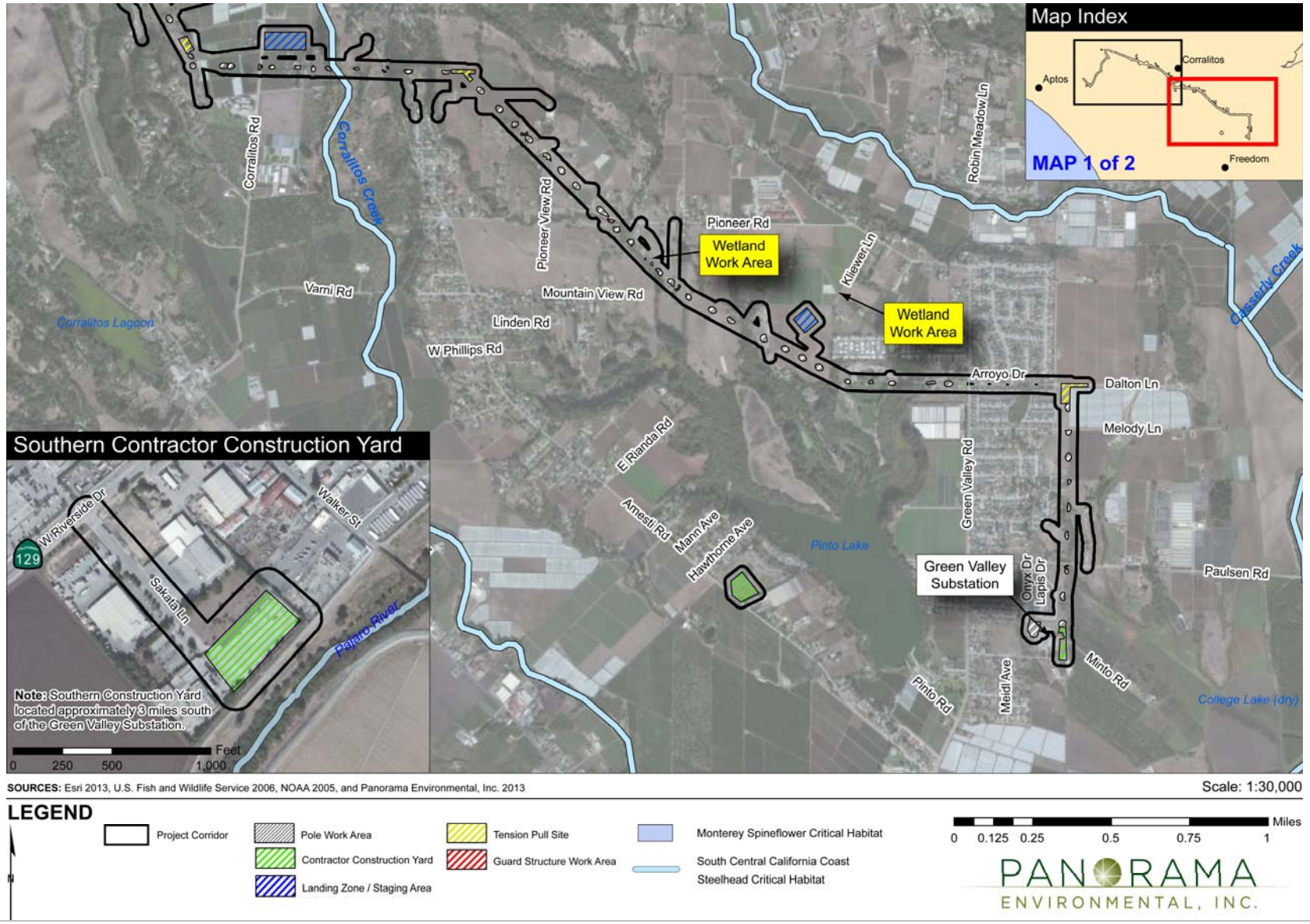
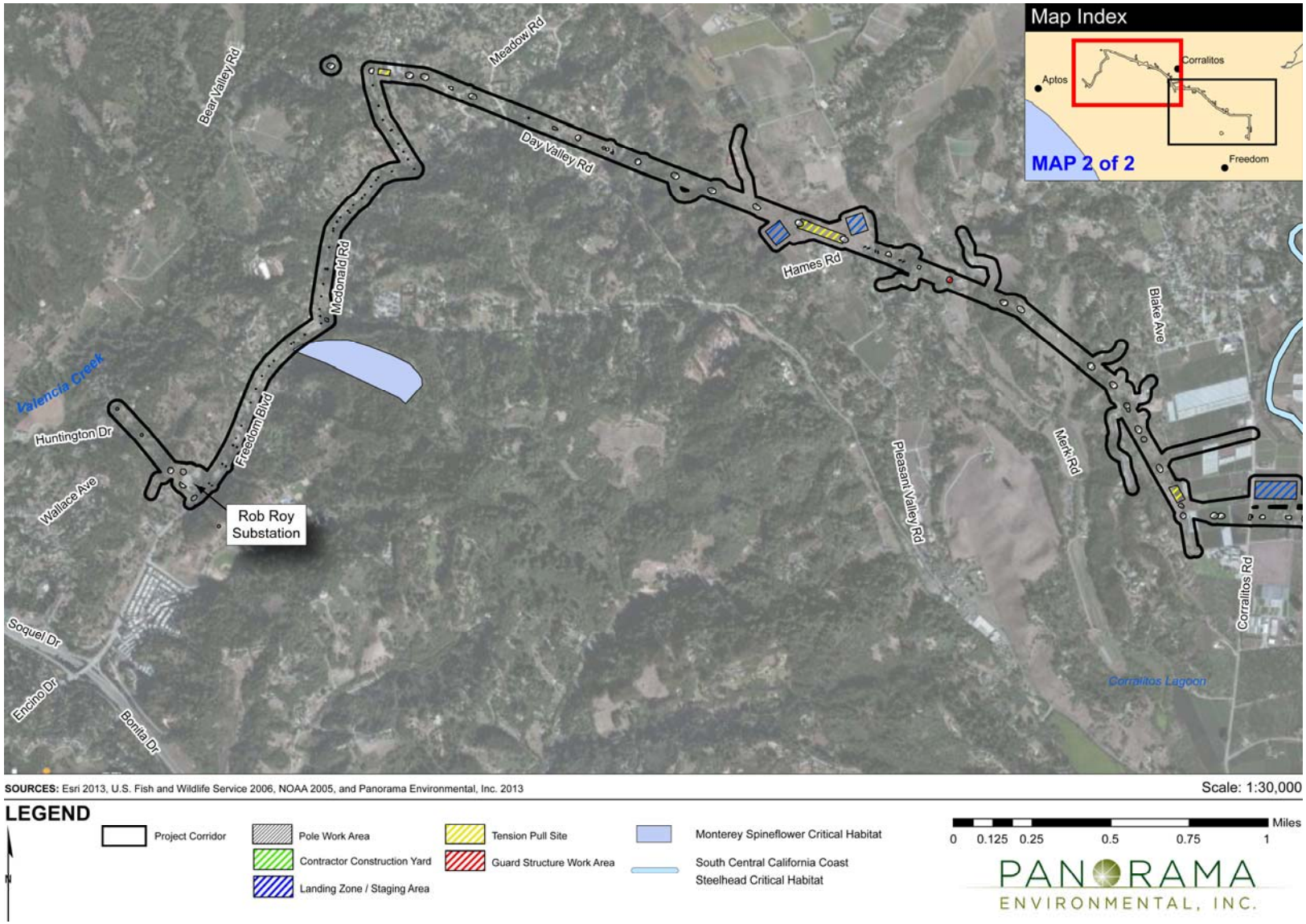


Figure 3.4-7: Critical Habitat Areas in Proximity to the Project Corridor, Map 2



Pacific Flyway

The project corridor is entirely located within the Pacific Flyway, a major north-south avian migratory corridor that extends along the west coast from Alaska to Patagonia and that provides suitable foraging habitat for many resident and migratory avian species. The Pacific Flyway links breeding grounds in the north to more southerly wintering areas and is therefore used by an abundance of bird species during migration. The Monterey Bay area and Santa Cruz Mountains areas of the Pacific Flyway provide high-quality resting and foraging areas for numerous birds during the migratory seasons (Insignia 2012a).

Corralitos Creek

Corralitos Creek is a migratory corridor for steelhead south-central DPS. Migration corridors such as Corralitos Creek are essential for steelhead spawning and the overall reproductive success of the species. Terrestrial wildlife species also tend to travel along natural drainages, which also provide a foraging source and a protective cover from predators (Insignia 2012a).

Habitat Conservation Plan

There are no HCPs or NCCPs covering the project corridor. The Tucker Pond HCP is currently being implemented at the Tucker Family Residence, which is located 0.9 miles south of the Northern Alignment and 0.77 miles east of the Cox-Freedom Segment (Figure 3.4-5).

3.4.2 Applicant Proposed Measures

PG&E proposed to implement measures that would reduce environmental impacts. The following relevant APMs are considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include these APMs as part of the project, and PG&E would have to adhere to the APMs as well as any identified mitigation measures. The APMs that are applicable to the biological analysis are shown in Table 3.4-7. Several APMs were superseded with mitigation measures, as noted throughout the impact analysis.

Table 3.4-7: Applicant Proposed Measures for Biological Impacts

APM Number	Requirements
APM BIO-08. On-Site Biological Monitoring.	Under the direction of the PG&E Project Biologist, a CPUC-approved biologist will be present at all active construction areas in biologically sensitive areas
APM BIO-09. Special-status Wildlife in the Project Areas.	If a special-status species is observed on site, crews will stop work as quickly as is safe to do so and will contact the CPUC-approved biologist. Crew members will not be permitted to touch, handle, or relocate special-status wildlife. Notification and reporting guidelines established in the MMCRP will be implemented. If there is no CPUC-approved biologist in the immediate area to document the resource observation, crews will contact the Environmental Compliance Manager and the PG&E Project Biologist.

Table 3.4-7 (*Continued*): Applicant Proposed Measures for Biological Impacts	
APM BIO-10. Construction Site Speed Limits.	When safe to do so, a speed limit of 15 miles per hour will be observed on unpaved public access routes, and crews will maintain awareness for wildlife in the roadway. Travel on public roadways will be conducted according to established speed limits or as safety allows.
APM BIO-13. Raptor Protection Guidelines for New Poles.	The majority of the project has been designed to conform to the suggested guidelines in the following documents: • Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 –APLIC, 1994 • Avian Protection Plan Guidelines – APLIC and USFWS, April 2005 • Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 – APLIC, 2006 The project's final design and installation will reflect these suggested guidelines; however, no 115 kV insulators have been manufactured that meet the recommended 71-inch horizontal phase to ground clearance guideline. As a result, the project will not reflect to this suggested guideline, which is not required to minimize significant effects
APM BIO-18. Inspection of Construction Materials for Wildlife.	Before being moved, all poles and similar construction materials stored overnight at the construction site will be thoroughly inspected for animals. If special-status species are observed within poles or similar construction materials, they will be avoided and allowed to leave of their own volition.
APM BIO-19. No Pets in the Project Area.	Crewmembers and project personnel will not be allowed to bring pets to the project area.
APM BIO-20. No Firearms in the Project Area.	Firearms will be prohibited in all work areas, unless carried by authorized security personnel.
APM BIO-21. Garbage and Trash Management.	Littering will be prohibited. Food-related garbage and trash will be enclosed in covered, secured containers and removed from the project area as necessary, but no less than weekly. Storage yards, contractor yards, and other non-temporary work areas may use centralized areas to aggregate and store wastes.
APM BIO-29. Installation of Surface Barriers on Overland Access Roads.	When vehicles and other construction equipment are required to travel on designated overland routes to reach work sites within suitable upland habitat, determined per APM BIO-25, for Santa Cruz long-toed salamander, the CPUC-approved, qualified biologist will survey the route and flag all burrows and/or other potential refugia along the route for avoidance. If travel over burrows is determined unavoidable (e.g. no other route that can support vehicle travel is available due to space or topography constraints), a temporary surface barrier (e.g. plywood, steel plate, or fiberglass matting) will be placed over burrows immediately prior to using the overland access route in areas where practicable (based on topography, soil type, safety, etc.). The temporary surface barrier will be immediately removed at the end of each day (or sooner). If it is not practicable to place a temporary surface barrier or avoid the burrow within the overland route, no access will occur in these areas until the PG&E Project Biologist contacts USFWS, CDFW, and the CPUC for additional instructions and measures to be implemented that ensure no impacts to Santa Cruz long-toed salamanders.

3.4.3 Environmental Impacts and Assessment

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 Wildlife 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 Wildlife or the U.S. Fish and Wildlife Service?	☐	☐	☒	☐
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 Wildlife or the U.S. Fish and Wildlife Service?

Summary

Several special-status plant and animal species have a low, moderate, or high potential to occur in the project corridor. This section identifies the impacts of the proposed project on these species and includes mitigation, as appropriate, to minimize effects. Table 3.4-8 provides a

Table 3.4-8: Quantification of Impacts to Habitat Supporting Special-status Species

Habitat Type/Vegetation Community	Mapped Acres of Habitat in Project Corridor	Special-status Species with Potential to Occur within Habitat Type	Acres within Proposed Overland Access Routes	Acres within Proposed Work Area	Total Max Acres of Temporary Impact	Total Max Acres of Permanent Impact
Disturbed	174.0	Burrowing owl	0.4	4.5	4.8[1]	0.02
Agriculture	116.4	Burrowing owl White-tailed kite	1.2	12.2	13.3[1]	0.01
Annual Grassland	74.7	Gairdner's yampah Santa Cruz tarplant White-tailed kite Burrowing owl	1	7.9	8.9	0.01
Mixed Chaparral	38.4	Monterey spineflower Robust spineflower Gairdner's yampah Kellogg's horkelia	0.2	3.1	3.3	0.03
Coastal Oak Woodland	32.2	Monterey spineflower Robust spineflower Monterey pine Choris' popcorn-flower Bald eagle San Francisco dusky-footed woodrat Pallid bat Townsend's western big-eared bat	0.2	1	1.2	0.1
Coastal Scrub	18.3	Santa Cruz tarplant Kellogg's horkelia Choris' popcorn-flower	0.01	0.6	0.6	0.01

Table 3.4-8 (*Continued*): Quantification of Impacts to Habitat Supporting Special-status Species

Habitat Type/Vegetation Community	Mapped Acres of Habitat in Project Corridor	Special-status Species with Potential to Occur within Habitat Type	Acres within Proposed Overland Access Routes	Acres within Proposed Work Area	Total Max Acres of Temporary Impact	Total Max Acres of Permanent Impact
Coastal Riparian	15.0	Western red bat San Francisco dusky-footed woodrat	0	0.000009	0.000009	0
Nonnative Woodland	10.1	Dusky-footed woodrat Bald eagle	0	0.1	0.1	0.2
Perennial Grassland	2.3	Gairdner's yampah Santa Cruz tarplant White-tailed kite Burrowing owl	0	0	0	0
Fresh Emergent Wetland	0.8	White-tailed kite	0	0	0	0
Lacustrine	0.3	Bald eagle	0	0	0	0

Notes

[1] This quantity is less than the sum of the overland access route and proposed work area acreages because there is overlap between those areas.

summary of the quantification of impacts to each species with high or moderate potential to occur in the project corridor by habitat type, as defined throughout this section. The quantification of impacts to known populations of Monterey spineflower is provided in Table 3.4-9.

Construction

Plants

Overview. The loss of a population of special-status plants would be considered significant. Loss could occur through ground disturbance for grading, excavation, or through vegetation management or tree removal for overland access routes, work areas, or pull sites. Significant impacts could occur to:

- Populations of Monterey spineflower
- Monterey pine or oaks

Table 3.4-9: Quantification of Temporary and Permanent Impacts to Monterey Spineflower

Pole	Temporary		Permanent	
	Description	**Acreage**	**Description**	**Acreage**
C-38	Pole work area	0.0164	None	N/A
	Pull site	N/A	None	N/A
C-61/E-66	Work area	0.0293	None	N/A
	Overland access route	0.01	None	N/A
C-60/E-65	Work area	0.0155	None	N/A
C-62/E-67	Populations near but do not overlap with work area	N/A	None	N/A
C-63/E-68	Populations near but do not overlap with work area and overland access route	N/A	None	N/A
C-65/E-70	Work area	0.132	Footprint of C-65	0.002
	Overland access route	0.036	None	N/A
E-72	Populations near but do not overlap with work area and overland access route	N/A	None	N/A
C-76C/E-16A (Rob Roy Substation)	Work area	0.292	Footprint of C-76	0.002
	Overland access route	0.055	None	N/A
C-91 (Rob Roy Substation)	Work area	0.04	None	N/A
	Total Temporary Impacts	**0.63**	**Total Permanent Impacts**	**0.004**

- Populations of other sensitive species including robust spineflower, Gairdner's yampah, Monterey pine, Santa Cruz tarplant, Kellogg's horkelia, and/or Choris' popcorn-flower

Populations of Monterey Spineflower. Ground disturbance would not occur within Critical Habitat areas for Monterey spineflower, although a small area overlaps with the corridor, no work is proposed within this overlap area. Construction impacts to Monterey spineflower could occur through vegetation clearing for maintenance of overland access routes, pull sites, and work areas (temporary); through trampling by heavy equipment (temporary); during excavation for poles (permanent); and through introduction of invasive species (permanent). Table 3.4-9 shows the currently estimated acreage of construction impacts to known populations of Monterey spineflower based on proposed work areas. These acreages may change, however, based on annual changes in the location of the populations and the potential for project elements to be relocated within the project corridor. Permanent impacts are not anticipated to exceed 0.01 acres and temporary impacts are not anticipated to exceed 1 acre. Since the Monterey spineflower is an endangered plant species under the federal ESA and is listed as a CRPR 1B.2 plant by CNPS with a very limited range and few remaining populations, loss of one population of the species would be considered a significant impact. In order to reduce significant impacts, the following mitigation measures would be implemented to ensure that any populations that could be harmed during construction are restored or compensated for after completion of construction.

> **Mitigation Measure Biology-1: Avoidance and Minimization of Impacts to Monterey Spineflower (Supersedes APM BIO-27).** Before construction begins and during the appropriate phenological periods, Monterey spineflower surveys shall be conducted by a CPUC-approved, qualified botanist in areas where they were previously identified or have the potential of occurring in project work areas (as shown in Initial Study Figures 3.4-3 and 3.4-4 and/or in the project GIS database). The surveys shall be limited to the construction right-of-way and publically accessible lands where PG&E has access rights. No work shall occur within areas of Critical Habitat for Monterey Spineflower. Agricultural fields and developed areas shall not be surveyed due to the lack of suitable habitat for supporting rare plant species. The boundaries of Monterey spineflower populations near project work areas, or the limits of project work areas or access roads/routes near Monterey spineflower populations that will be avoided shall be delineated with clearly visible flagging or fencing. The populations that will be impacted shall be recorded using a submeter-accurate global positioning system ("GPS") unit, and the total acreage of temporary and permanent impacts shall be calculated.
>
> In project work areas where Monterey spineflower is present, work shall be conducted in late summer or early fall to avoid impacting these plants before they have set seed, if feasible and only by a biologist appropriately permitted to collect seed. If this is not feasible and it is possible to collect seed prior to the start of construction, seed shall be collected from the Monterey spineflower individuals and shall be used during restoration following the completion of construction activities. If seed collection is not feasible all work areas occupied by the spineflower shall be protected by steel plates or

plywood, which shall be removed as soon as construction activity in that area has been completed. Alternatively, a CPUC-approved, qualified biologist can proceed with the relocation of the spineflower to previously identified and approved locations.

To mitigate for the anticipated loss of less than 0.1 acre of occupied Monterey spineflower habitat due to project related permanent impacts (such as pole installation), PG&E shall enhance habitat at a 1:1 ratio for Monterey spineflower by removing iceplant (*Carpobrotus* spp.) and other non-native plants, including European beach grass (*Ammophila arenaria*) at locations in which Monterey spineflower are present and disturbed by project activities and if property owners authorize the enhancement efforts. These efforts shall reduce non-native species coverage by 85% and invasive species coverage by 90% and shall be maintained for up to one year post-construction. Site maintenance activities shall be altered or intensified when necessary to meet performance criteria. Post-construction monitoring of areas previously occupied by spineflower and impacted by construction shall be conducted by a CPUC-approved, qualified biologist to ensure that the spineflower populations have recovered, are stable, and that the sites are not occupied by invasive species. If invasive species are encroaching on the sites, they shall be removed. If spineflower populations are not recovered comparable to pre-construction levels after 1 year, remedial actions shall be taken and may include broadcasting spineflower seed collected from plants in immediately adjacent areas, if available, or obtained from appropriate seed banks, and shallow soil disturbance (*e.g.*, raking) to stimulate spineflower germination and establishment.

Alternatively, PG&E shall identify, together with USFWS, Santa Cruz County and the CPUC, appropriate suitable sites where the enhancement efforts can be executed. An appropriate site may include areas within PG&E properties close to existing populations, such as at Rob Roy Substation. After removing invasive plants, the selected restoration area shall be seeded with Monterey spineflower seed collected from impacted plants (if available) or obtained from appropriate seed banks. A monitoring and reporting program shall be developed and approved by the CPUC to ensure compliance, which shall be detailed in the Revegetation, Restoration, and Monitoring Plan. The monitoring program shall include pre- and post-treatment vegetation sample plot surveys to record the percent cover of invasive plants and Monterey spineflower prior to and after treatment. The plots shall be surveyed during the appropriate phenological period for Monterey spineflower to allow for positive identification. Non-native and invasive weed cover shall be no more than 10% in the restoration plots. Monitoring shall be conducted for a period of 2 years. If the restoration is not successful after 2 years, PG&E shall consult with USFWS, Santa Cruz County, and CPUC to define alternative measures. Reporting frequency and content shall be addressed in the Revegetation, Restoration, and Monitoring Program.

Mitigation Measure Biology-2: Site Restoration and Revegetation (Supersedes APM BIO-03). PG&E shall prepare a Revegetation, Restoration, and Monitoring Plan prior to

commencement to project construction that shall be submitted to the CPUC for approval. The plan shall include the requirements for

- Impacts to Monterey spineflower identified in Mitigation Measure Biology-1
- Impacts to rare plants identified in Mitigation Measures Biology-5
- Tree removal identified in Mitigation Measure Biology-6
- Impacts to coastal scrub habitat as identified in Mitigation Measure Biology-17

The plan shall include the species or habitats that could be impacted, the replacement or restoration ratios (as appropriate), the restoration methods and techniques, and the monitoring periods and success criteria as identified in each measure.

Mitigation Measure Biology-3: Conduct Environmental Training for All Crewmembers (Supersedes APM BIO-05). An environmental training program shall be developed and presented to all crew members prior to the beginning of all construction associated with this project. The training shall describe special-status species and sensitive habitats that could occur within the project areas, protection afforded these species, and the avoidance and minimization measures required to avoid and/or minimize impacts on this project. Penalties for violations of environmental laws shall also be incorporated into the training session. Each crewmember shall be provided with an informational training handout and a decal to indicate that he/she has attended the training. The roles and responsibilities of the CPUC-approved biologists and other environmental representatives shall be identified in the Mitigation Monitoring Compliance and Reporting Program (MMCRP) and discussed during the training.

The environmental training described here shall include information about avoidance measures regarding the Santa Cruz long-toed salamander, its protected status, and the procedures to be followed in the event that the Santa Cruz long-toed salamander is observed during construction. All new construction personnel shall receive this training before beginning work on this project.

A copy of the training and training materials shall be provided to the CPUC at least 30 days prior to the start of construction. Training logs and sign-in sheets shall be provided to CPUC on a monthly basis. As needed, infield training shall be provided to new on-site construction personnel by the environmental compliance supervisor or a qualified individual who shall be identified by the PG&E's Project Biologist, or initial training shall be recorded and replayed for new personnel.

Mitigation Measure Biology-4: Minimize Noxious Weeds. Precautions shall be taken to minimize the introduction of any invasive weeds. Construction equipment shall be clean before it arrives at work areas in the project corridor. Any landscaping involving vegetation other than trees and/or shrubs shall consist of native seed mix or other ecologically appropriate, non-invasive, plants. Only weed-free straw or mulch shall be used.

Other Populations of Rare Plants. Populations of robust spineflower, Santa Cruz tarplant, Kellogg's horkelia, and Gairdner's yampah were not identified within proposed work areas or overland access routes during rare plant surveys; however, potential habitat for these species is found within the project corridor and the species may occur at the time of construction within work areas. Construction impacts to any of these species would occur through vegetation clearing for maintenance of overland access routes, pull sites, and work areas (temporary); through trampling by heavy equipment (temporary); and during excavation for poles (permanent). The loss of a rare plant population would be considered a significant impact. The following mitigation measure, along with Mitigation Measure Biology-2, would be implemented to reduce impacts to less than significant levels.

> **Mitigation Measure Biology-5: Avoidance and Minimization of Impacts to Special-Status Plant Populations (Supersedes APM BIO-04)**. If rare plants other than Monterey spineflower (which is addressed in Mitigation Measure Biology-1), but including robust spineflower, Santa Cruz tarplant, Kellog's horkelia, and Gairdners yampah, are identified within proposed work areas through surveys conducted by a CPUC-approved, qualified botanist, they shall be flagged and avoided, if feasible. If avoidance is not feasible and impacts to the individuals would occur as a result of work activities, the impacts shall be documented and addressed through the implementation of the Revegetation, Restoration, and Monitoring Plan. The plan shall require 1:1 restoration for any impacted rare plants and shall include a 2- year minimum monitoring period to ensure successful regermination of the rare plant. The plan shall also include success/performance criteria. Measureable, quantitative success/performance criteria to determine the success of mitigation for each rare plant species include: the establishment of self-sustaining populations within naturally functioning and regenerating habitat; size and density of the rare plant populations similar to the reference populations; no more than 15 percent relative cover of non-native species, and no more than 10 percent relative cover of invasive species (e.g., ice plant, European beach grass, and pampas grass). If success is not reached within two years, PG&E shall consult with appropriate resource agencies (based on status and listing), Santa Cruz County, and CPUC to define alternative measures.

Monterey Pine and Oak Woodland. Construction of the power line would require tree removal within widened ROWs for appropriate clearance from the new conductor. Up to 165 trees would be removed, including some Monterey pine. The number and sizes of Monterey pine are not known at this time. Monterey pine is a CRPR 1B.1 species and removal of these trees would be considered a significant impact due to their rarity. Mature oak trees would also be removed for project construction. Oak woodland is protected under California Public Resources Code 21083.4, which requires counties to determine whether a proposed project may result in the conversion of oak woodlands that would have a significant effect on the environment. Oak woodlands occur in the project area and several oaks may be removed in order to construct and maintain appropriate clearance for the line. Removal of large oaks would be considered a

potentially significant impact because it could result in the conversion of areas of oak woodland.

Tree replacement would be required to minimize effects from the loss of Monterey pine and oaks to less than significant levels.

Mitigation Measure Biology-6: **Tree Removal and Replacement.** The Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2) shall address removal and compensatory replacement of special status tree species, including oak species and Monterey pine.

The Revegetation, Restoration, and Monitoring plan shall include the following minimum elements that address these species:

- Identification of species, size, and locations of all oak species and Monterey pine to be removed, preferably in a GIS layer
- Species, size, and locations of all replacement plantings
- Tree planting detail (provisions for adequate drainage, location, and spacing of replanted trees)
- Planting schedule
- Agreement with proper authority regarding location of replanting (*e.g.*, written permission from jurisdiction to replant on that jurisdiction's land, or landowner)
- Monitoring requirements to ensure success of the trees and contingency measures if trees are not successful. Both tree species should be monitored for at least three years

Oaks and Monterey pine shall be replaced as described in the following table.

If tree replacement on-site is not possible due to constraints such as lack of property owner consent, incompatibility with regulatory clearance requirements, or some other similar constraint, PG&E shall consult with Santa Cruz County to fund appropriate organizations for offsite tree replacement.

Mitigation for removal of oak trees of any size	
Oak	Replacement ranges from 1:1 for saplings to 10:1 for large oaks; replacement should be of the same species of oak as removed. Replacement ratios shall be determined by the CPUC-approved, qualified biologist (or arborist), depending on the size and health of each tree removed.
Mitigation for removal of Monterey pine	
Monterey Pine	Individual specimens of Monterey pine less than 6 inches shall be relocated; specimens over 6 inches and under 24 inches diameter that are proposed for removal shall either be relocated or replanted at a 5:1 ratio Individual trees greater than 24 inches diameter shall be replaced at 10:1.

Animals

The project has the potential to impact special-status wildlife species, including fish, amphibians, birds, and mammals.

Fish

The steelhead south-central DPS, a federally threatened fish, has a high potential of occurring in Corralitos Creek, which is within the project corridor. Critical habitat for this species is also located within the project corridor. The proposed power line would span Corralitos Creek between two TSPs located beyond the limits of the creek's OHWM and floodplain. No direct impact to steelhead south-central DPS would occur because no poles or fill material would be placed in the creek, and no work would occur within the creek. The proposed project would not have indirect impacts to special-status fish because best management practices (BMPs) identified in APM HYD-01 require erosion control that would prevent sedimentation of creeks and waterways. The project would not impact critical habitat for this species.

Amphibians

The proposed project corridor provides suitable habitat for California red-legged frog and Santa Cruz long-toed salamander.

California Red-legged Frog. California red-legged frogs can travel up to 1 mile overland from ponds and suitable habitat areas. Surveys were conducted for California red-legged frog in May, June, and July 2011 (Insignia 2011). Stock ponds within 1 mile of the project corridor that provide suitable habitat for California red-legged frog were surveyed in accordance with USFWS protocols. California red-legged frogs were not identified within suitable habitat areas within 1 mile of the project corridor; therefore, no California red-legged frogs are expected to occur in the project corridor and construction would have no impact on California red-legged frogs.

Santa Cruz Long-toed Salamander. The Santa Cruz long-toed salamander is a state Fully Protected species and is federally and state listed as endangered. A significant impact to the species could occur if the proposed project were to cause a decrease in the overall size of the Freedom meta-population of Santa Cruz long-toed salamander. Injury or death of a salamander from project construction would have a significant impact on the population due to its limited population size, limited geographic distribution, and the species' vulnerability to extirpation.

The project corridor is not located in or adjacent to Santa Cruz long-toed salamander breeding habitat and there is no potential for project impacts to breeding habitat. There are, however, 37 work areas encompassing 6.5 acres and 5 overland access routes encompassing approximately 1 acre that are within suitable upland habitat for the salamander (*i.e.*, where the salamander can be found year-round). The Santa Cruz long-toed salamander habitat assessment is provided in Appendix B to this Initial Study. The habitat assessment provides a detailed review of each work area and overland access route (included in Appendix C1 and C2 of the habitat assessment). An additional 73 work areas provide suitable dispersal habitat for the salamander

during the rainy season, but lack suitable cover and habitat characteristics to be used for over-summering during the dry season.

Santa Cruz long-toed salamander could be impacted by construction activities as follows:

- Individuals could be impacted directly if work and overland access occurs during dispersal and migration in suitable habitat
- Individuals could be impacted directly if work and overland access occurs during over-summering in suitable habitat
- Individuals could be impacted indirectly if suitable upland or dispersal habitat is lost after construction

Dispersal. If work occurs during the rainy season in suitable dispersal habitat or suitable upland habitat for the Santa Cruz long-toed salamander, salamanders could be injured or killed by project activities, as migrating salamander could be crushed by equipment or injured or killed during excavation. The following mitigation measures would be implemented to avoid injury or death to individual migrating Santa Cruz long-toed salamanders from construction during the rainy season.

> **Mitigation Measure Biology-7: Seasonal Ground Disturbance Windows (Supersedes APM BIO-25).** Project related ground disturbance activities shall not take place in Santa Cruz long-toed salamander upland habitat or dispersal habitat within 1 mile of a known or potential breeding pond during the local rainy season (typically between October 15 and April 15 or as outlined by the local precipitation data available at NOAA National Weather Service's website http://www.weather.gov/) to avoid affecting Santa Cruz long-toed salamander during their breeding migration or during outward-bound dispersal of post-metamorphic juveniles. The seasonal restriction does not apply to locations that are within 1 mile of a known or potential breeding pond but do not support upland habitat or dispersal habitat for the salamander such as paved areas and agricultural fields. The locations for which the seasonal restriction does not apply shall be identified with supporting documentation submitted to the CPUC for approval.
>
> **Fencing.** If construction is anticipated to extend past the beginning of the local rainy season, non-ground disturbing work within the work areas supporting dispersal and upland habitat for the salamander shall only be allowed if an exclusion fence is in place prior to the first significant rainfall (0.25 inches or greater) and no later than October 15th. Fencing shall remain in place until activities at a particular site are completed. During construction, the CPUC-approved, qualified biologist shall check the fence at each location on at least a weekly basis for presence of wildlife and for integrity of the fence.
>
> If a salamander is observed in project work areas, crews shall stop work within the specific work area as quickly as is safe to do so and shall immediately contact the Environmental Compliance Manager and the PG&E Project Biologist. Work shall not commence within the specific location of the siting until the completion of consultation

with USFWS and CDFW and all impacts to Santa Cruz long-toed salamander can be avoided.

Mitigation Measure Biology-8: Limiting Vegetation and Tree Removal (Supersedes APM BIO-26). For all sites west of Corralitos Creek, including those within 1 mile of a known or potential Santa Cruz long-toed salamander breeding ponds, all clearing of vegetation shall occur under the supervision of the CPUC-approved, qualified biologist to ensure that adjacent habitat is not unnecessarily removed and no impacts occur to Santa Cruz long-toed salamander. The CPUC-approved biologist shall conduct a pre-activity survey for special status species, ensure that the access routes are surveyed to avoid crushing wildlife, and limit the vegetation removal to the minimum amount necessary to complete the work. Clearing of vegetation west of Corralitos Creek shall be performed by hand (chain-saws and similar hand equipment are acceptable) without the use of heavy equipment. In addition, clearing of vegetation (including tree removal) in these areas west of Corralitos Creek shall not occur during the rainy season (typically between October 15 and April 15 or as outlined by the local precipitation data available at NOAA National Weather Service's website http://www.weather.gov/), when Santa Cruz long-toed salamander are more likely to be at or near the surface.

The trees removed (number of trees, diameter at breast height, species, and location) shall be documented and addressed in the Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2).

Over-summering. Work during the dry season within the 37 work areas and 5 overland access routes within suitable upland habitat for the Santa Cruz long-toed salamander could result in injury or harm to an individual salamander that may be over-summering in the work area or along an overland access route. APM BIO-29 would require the avoidance of burrows and refugia or use of temporary surface barriers to prevent injury or death to Santa Cruz long-toed salamander from overland access.

PG&E, in conjunction with USFWS, is proposing to conduct scientific studies to address the migration of the Santa Cruz long-toed salamander away from known and potential breeding ponds near their transmission facilities. This separate study would include the installation of exclusion fences that encompass all work areas with suitable upland habitat for the Santa Cruz long-toed salamander. The study would include the identification and relocation of any salamanders that are found within the fenced-in areas during the migration and dispersal period to areas outside of the fencing. Therefore, at the end of the rainy/dispersal season, it would be unlikely for salamanders to be over-summering within the fenced areas.

In order to ensure that no over-summering salamanders are impacted by project construction in these upland areas, Mitigation Measure Biology-9 would be implemented, which only allows work to occur in the work areas where upland habitat is found if Santa Cruz long-toed salamander have been excluded from the areas during the rainy/dispersal season prior to

construction.With implementation of these measures, accidental injury or death of over-summering Santa Cruz long-toed salamander would be avoided.

> **Mitigation Measure Biology-9: Working in Santa Cruz Long-toed Salamander Habitat.** Construction that could harm Santa Cruz long-toed salamander (e.g., staging of heavy equipment and materials, grading, excavation) within work areas where suitable upland habitat occurs (or any additional suitable upland habitat areas identified prior to construction) as defined in Mitigation Measure Biology-7, shall only be allowed if Santa Cruz long-toed salamanders have been excluded from the area during the rainy/dispersal season prior to construction. If work areas need to be expanded in suitable upland habitat areas where salamander has not been previously excluded, only non-ground disturbing activities (*i.e.*, no excavation) shall be allowed in these areas. The CPUC-approved, qualified biologist shall survey the expansion areas and flag all burrows and/or other potential refugia for avoidance. If burrows are unavoidable (*e.g.*, no other space that can support vehicles or equipment is available due to space or topography constraints), a temporary surface barrier (*e.g.*, plywood, steel plate, or fiberglass matting) shall be placed over burrows immediately prior to using the expanded work area, where practicable (based on topography, soil type, safety, etc.). The temporary surface barrier shall be immediately removed at the end of each day (or sooner). If it is not practicable to place a temporary surface barrier or avoid the burrow within the expanded work area, no work that could harm Santa Cruz long-toed salamander (*e.g.*, staging of heavy equipment and materials, grading, excavation) shall be allowed in these areas until the PG&E Project Biologist contacts USFWS, CDFW, and the CPUC for additional instructions and measures to be implemented that ensure no impacts to Santa Cruz long-toed salamanders. Under no circumstances shall the salamanders be handled. Vegetation and tree removal in Santa Cruz long-toed salamander habitat is addressed in Mitigation Measure Biology-8.

Loss of Suitable Dispersal or Over-summing. Project construction may alter suitable upland habitat or dispersal habitat such that it could have indirect effects on Santa Cruz long-toed salamander migration and dispersal after construction. Woody debris, leaf litter, and other materials used for refugia may be cleared in work areas in order to perform construction activities or to clear vegetation. The following measure would be implemented to ensure that habitat features for Santa Cruz long-toed salamanders are restored after construction in upland and dispersal habitat in order to avoid indirect impacts to the salamander.

> **Mitigation Measure Biology-10: Habitat Restoration of Disturbed Work Areas in Santa Cruz Long-toed Salamander Habitat (Supersedes APM BIO-28).** Habitat restoration of disturbed work areas within suitable upland habitat or dispersal habitat for the Santa Cruz long-toed salamander shall be required. Habitat restoration shall include, but not be limited to, reseeding and restoring construction areas to pre-construction conditions with native species. Areas shall be monitored for one year to ensure that invasive species do not overtake native species growth. If invasive species are found, they shall be removed. Woody debris, leaf litter, and other natural materials

> used as refugia for migrating salamanders shall be restored or replaced after construction is complete in areas where it was cleared prior to construction. The debris should be stockpiled during clearing for later use. Habitat restoration efforts shall be identified in the Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2).

Several APMs also address impacts to Santa Cruz long-toed salamanders, including measures that require an on-site biological monitor during construction in sensitive areas, the requirement to stop work in the event that a special status species is encountered, the requirement to inspect construction materials for wildlife, the banning of pets and firearms at project sites, and the requirement to manage trash that can attract predators. With implementation of the APMs and mitigation measures identified here, impacts to Santa Cruz long-toed salamander would be less than significant during project construction.

Birds

Migratory and Nesting Birds. Migratory birds are protected by the Migratory Bird Treaty Act (MBTA). They are also protected by Fish and Game Code, as follows:

> 3503. It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.
>
> 3503.5. It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.
>
> 3513. It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act.
>
> 3511(a)(1). Except as provided in Section 2081.7 or 2835, fully protected birds or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird, and no permits or licenses heretofore issued shall have any force or effect for that purpose.
>
> 86. "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

A significant impact to migratory or nesting birds would result if an active nest and/or eggs are destroyed or if an individual migratory bird (as protected under Fish and Game Code and the MBTA) is killed from construction activities. Tree trimming and removal could result in the direct take or killing of a bird or bird nest. Construction noise from any activities that generate noises above ambient noise levels could indirectly result in the killing of birds if the noise

disturbance causes abandonment of the nest and subsequent death of the nestlings, which would be considered a significant impact. Potentially significant impacts could occur from tree removal or trimming as well as from construction noise in proximity to active nests. The level and proximity of noise necessary to result in significant disturbance would likely depend on the species, the existing environmental noise and disturbance, the topography between the activity and the nesting birds, the duration of the construction activity, and the type and level of noise generated. The following mitigation measures would be required to reduce impacts to nesting birds to less than significant levels.

Mitigation Measure Biology-11. Nesting Birds (Supersedes APM BIO-12). This measure applies to all work areas in which construction related activities are to be conducted during the nesting bird season (generally between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions).

Tree removal activities should be conducted outside of the nesting bird season. If trees are to be removed during the nesting season, the trees and surrounding area shall be surveyed following the provisions listed below.

Survey Requirements. If work is scheduled to occur during the avian nesting season, nesting bird surveys shall be conducted according to the following provisions:

- Surveys shall occur within 7 days prior to the start of ground-disturbing construction or vegetation trimming or removal activities. If there is no work in an area for 7 days, it shall be considered a new work area if construction or vegetation trimming or removal begins again.
- Surveys shall be conducted with sufficient survey duration and intensity of efforts necessary for the identification of active nests (including nests of protected species) within trees identified for removal and/or pruning , and within a 500 foot buffer; surveys for tree pruning or removal work are to be completed within 48 hours of work beginning.
- Surveys shall be conducted during locally appropriate dates for nesting seasons; note that generally the season is between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions.
- The surveys shall be conducted by a CPUC approved, qualified biologist;
- Provisions for addressing nesting bald eagles, including a 0.5-mile survey area to be implemented within areas with suitable habitat for nesting bald eagles
- Survey results shall be made available to the CPUC
- Work areas within which significant noise is not generated, such as work performed manually, by hand or on foot and/or that would not cause significant disturbances to nesting birds (e.g., operating switches, driving on access roads, normally occurring activities at substations, staging and laydown areas) do not need to be surveyed prior to use. None of these activities shall result in physical contact with a nest.

Avoid impacts on nesting birds. During the nesting season (generally between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions) trees with raptor nests that fall within a 500 feet buffer from a work location, shall be evaluated by a CPUC-approved, qualified biologist to determine, whether the raptor nest is "active". No trees with active raptor nests shall be removed during nesting season.

No additional measures shall be implemented if active nests are more than the following distances from the nearest work areas: a) 500 feet for raptors, or (b) 250 feet for passerine birds in rural areas (c) 50 feet for common (non-special status) passerine birds in residential, commercial, and industrial areas. Buffers shall not apply to construction-related traffic using existing roads where the use of such roads is not limited to project-specific use (i.e., county roads, highways, farm or other private roads).

As appropriate, exclusion techniques may be used for any construction equipment that is left unattended for more than 24 hours to reduce the possibility of birds nesting in the construction equipment. An example of an exclusion technique is covering equipment with tarps.

Buffer reduction. The specified buffer sizes for birds may be reduced on a case-by-case basis if, based on compelling biological or ecological reasoning (*e.g.*, the biology of the bird species, concealment of the nest site by topography, land use type, vegetation, and level of project activity, level of pre-existing disturbance on site), it is determined by a CPUC-approved, qualified biologist that implementation of a specified smaller buffer distance will still avoid project-related "take" (as defined by Fish and Game Code Section 86). Requests to reduce standard buffers must be submitted to the CPUC's independent biologist(s) for review. Requests to reduce buffers must include: species, location, pre-existing conditions present on-site, description of the work to be conducted within the reduced buffer, size and expected duration of proposed buffer reduction, reason for the buffer reduction, the name and contact information of the CPUC approved, qualified biologist(s) who request the buffer reduction and shall conduct subsequent monitoring, and the proposed frequency and methods of monitoring necessary for the nest given the type of bird and surrounding conditions. The CPUC's independent biologist shall respond to PG&E's request for a buffer reduction (and buffer reduction terms) within one business day; if a response is not received, PG&E can proceed with the buffer reduction, until the CPUC's independent biologist can review and approve the buffer reduction request.

Non-special status species found building nests within the work areas after specific project activities begin, may be tolerant of that specific project activity; however, the CPUC approved, qualified biologist shall implement an appropriate buffer or other appropriate measures to protect the nest, after taking into consideration the position of the nest, the bird species nesting on site, the type of work to be conducted and duration of the construction disturbance. In these cases, the proposed buffer or other measures

must be approved by the CPUC's independent biologist through the buffer reduction process outlined in this measure, if buffers are less than those specified in this measure. These nests shall be monitored on a daily basis and only during construction activities (no monitoring required over weekends or periods when no work is conducted) by a CPUC-approved, qualified biologist until the CPUC-approved, qualified biologist has determined that the young have fledged, or construction ends within the work area (whichever occurs first). If the CPUC-approved, qualified biologist determines that the nesting bird(s) are not tolerant of project activity, the buffer outlined above in this measure shall be implemented.

If nesting birds show signs of intolerance to construction activities within a reduced buffer zone, the CPUC-approved, qualified biologist shall reinstate the recommended buffers. The recommended buffers may only be reduced again following the same process, as identified above, and after the CPUC-approved, qualified biologist has determined that the nesting birds are no longer exhibiting signs of intolerance to construction activities.

Monitoring and reporting. All nests with a reduced buffer shall be monitored on a daily basis during construction activities by a CPUC-approved, qualified biologist until the CPUC approved, qualified biologist has determined that the young have fledged, or construction ends within the reduced buffer/work area (whichever occurs first).

Nest locations and exclusion buffers shall be mapped (using GIS) for all nests identified. This information shall be maintained in a database and shall be provided to the CPUC. A monthly written report shall be submitted to the CPUC for construction within a reduced buffer and shall include the following: information included in buffer reduction requests, work conducted within the work site, duration of work activities and related buffer reduction, information on nest success (eggs, young and adults). No avian reporting shall be required for construction occurring outside of the nesting season and if construction activities do not occur within a reduced buffer during any calendar month. A final report shall be submitted to the CPUC at the end of each nesting season summarizing all avian related monitoring results and outcomes for the duration of project construction. Nests located in areas of existing human presence and disturbance, such as in yards of private residences, or within commercial and or industrial properties are likely acclimated to disturbance and do not need to be monitored, as determined by the CPUC approved, qualified biologist and approved by the CPUC's independent biologist.

Bald Eagle. A known bald eagle nest is located in the vicinity (0.5 miles) of the project corridor. The nest was active in 2012 and may be active again in 2013. The existing nest may be occupied by bald eagles in future years, or the bald eagles may relocate closer to proposed work areas. A significant impact to bald eagles would occur if a bald eagle were to abandon the nest during breeding season as a result of the project, if the project were to result in the destruction of a nest, or if the project would result in the direct mortality of a bald eagle. The minimal permanent loss

of foraging habitat (0.2 acres or less) as a result of construction of the proposed project would not be a significant impact to bald eagles.

The use of helicopters could produce noise that could agitate the eagles and result in nest abandonment if a bald eagle were to be nesting within 0.5 miles of the project corridor during conductor stringing or other activities involving helicopters. The proposed project could result in abandonment of the nest if the bald eagle were to relocate and nest closer to the project corridor. Grading or vegetation removal conducted within 660 feet of an active bald eagle nest could potentially result in nest abandonment or destruction of a nest if the nest were to occur within an area for vegetation (e.g., tree) removal. To avoid significant impacts to bald eagles from nest abandonment the following mitigation measure would be implemented. Note that the measure also addresses golden eagles, which have not been observed in the project area but may be found in the future.

> **Mitigation Measure Biology-12**: **Nesting Bald and Golden Eagles (Supersedes APMs BIO-12A and 12B).** Construction activities are anticipated to occur during the nesting season for bald and golden eagles (eagles) (generally from January 15 through August 31). A CPUC approved, qualified biologist shall conduct nesting bird preconstruction surveys, as defined in Mitigation Measure Biology-11, for all construction activities that shall occur during the nesting season and within 0.5 mile of known eagle nest locations. Surveys shall be conducted for a distance of 0.5 mile from all project work areas (including staging areas, pull sites, and areas were access road improvements and/or ground disturbance is required). The frequency of the surveys and monitoring shall follow USFWS and CDFW recommendations and protocols (*e.g.,* USFWS Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations [Pagel et al. 2010] and CDFW Bald Eagle breeding and nesting survey instructions) and shall take into consideration landscape characteristics, nest location and visibility, and status of the nest. Helicopters may be used to conduct aerial surveys to document nests up to 0.5 mile from project work areas; otherwise, surveys can be conducted from observation points within construction right-of-ways and publicly accessible lands where PG&E has access rights. Where physical access to an area is unavailable, alternate, appropriate survey techniques should be used to compensate for limited physical access. Helicopter surveys, if needed, shall be appropriately scheduled to occur during different phases of the eagle nesting season and follow-up terrestrial surveys shall be conducted of nests observed by aerial survey, if needed, where accessible and in accordance with the instructions provided by USFWS/CDFW published guidance documents and instructions. Subsequent follow up surveys shall be conducted (if needed) to check on the status of each nest.
>
> If no active eagle nests are detected, no additional measures are required.
>
> If active bald or golden eagle nests are detected in areas exposed to urban-related disturbances (*e.g.,* air, vehicle, and pedestrian traffic, loud community events, parks, agricultural or farm lands in which farm equipment is generally operated, industrial

settings), a 0.25 mile buffer shall be established around the nest. At the discretion of the CPUC-approved qualified biologist, the buffer area may be increased around active eagle nests detected in more rural or undisturbed environments.

Buffer reductions for work within 0.25 miles of a bald or golden eagle nest shall follow the requirements identified in Mitigation Measure Biology-11; however, buffer reductions for bald and golden eagles must also be approved by CDFW and/or USFWS. If construction activities are approved by CPUC, CDFW and USFWS to be conducted within a reduced buffer, monitoring of active eagle nests shall take into considerations aspects such as landscape characteristics, nest location, and visibility of the nest and shall follow guidance and instructions provided by USFWS/CDFW published guidance documents and instructions. Per Mitigation Measure Biology-11, monitoring requirements shall be submitted with the buffer reduction request.

Use of helicopters shall be limited, to the extent practicable, to trips necessary to deliver, install and/or remove towers, poles, conductor, and tower/pole related equipment. Helicopter flight paths shall be developed to minimize and avoid impacts to eagle nests identified during project preconstruction surveys and shall not occur within 0.5 miles of an active eagle nests unless the nest occurs within less than 0.5 miles from planned and regularly occurring helicopter flight paths from the existing airport. If the active nest occurs within 0.5 miles of a planned and regularly used flight path from the existing airport, PG&E shall coordinate with local air traffic controllers to either use existing flight paths and/or adjust flight paths to a route that is consistent with all project requirements and avoids impacts to the nesting bald eagles; the CPUC shall be notified when this occurs.

White-tailed Kite. White-tailed kite is a state Fully Protected species. The proposed project would have a potentially significant impact on white-tailed kite if it were to result in the taking of one or more breeding pairs of the species, nests, or eggs. Similar to other nesting birds, project construction activities that include removal of trees or generation of noise in proximity to nests could cause significant impacts to white-tailed kites. The following mitigation measure would be implemented to ensure that all impacts to white-tailed kite are avoided.

Mitigation Measure Biology-13: **White Tailed Kite.** A qualified biologist shall conduct pre-construction surveys for white tailed kite within 0.25 mile of project construction activities, within 7 days of the start of construction. Surveys can be conducted from observation points within construction right-of-ways and publically accessible lands where PG&E has access rights. Where physical access to the entire survey area is unavailable, alternate, appropriate survey techniques shall be used to compensate for limited physical access. If any construction activities are planned during the nesting season (for this species approximately February 1 through August 31), avoidance measures shall include a no-construction buffer zone of a minimum distance of 0.25 mile. If occupied nests are closer than this distance to the nearest work site, consultation

with CPUC and CDFW shall be required to discuss how to implement the project and species avoidance measures to avoid "take."

Mammals

Special-status mammals with a moderate or high potential of occurring in the project corridor include three bat species and the San Francisco dusky-footed woodrat.

Bats. Bats that may occur within the project corridor include pallid bat, Townsend's western big-eared bat, and western red bat. The project would have a significant impact on special-status or other bats if it were to result in the destruction of a maternity colony of bats or destroy an active roost during breeding season, which could have in impact on a population of bats. The removal of vegetation for the project that provides forage for special-status bats would have a less than significant impact on bat populations as the project would have limited permanent impacts to these habitats at a regional scale.

Pallid bats roost in caves, crevices, and under bridges. The project would have limited impact on structures that could provide suitable roosting habitat for pallid bats, although work near bridges or sheds, etc., could potentially impact roosting pallid bat. Townsend's western big-eared bat and western red bat are known to roost in coniferous forest and woodlands along riparian areas, respectively. During construction, up to 165 trees may be removed, including conifers and trees within riparian areas. The following mitigation measure would prevent the destruction of a maternity colony or destroy an active roost as identified here and therefore reduce impacts to less than significant levels.

Mitigation Measure Biology-14: Avoidance of Roosting Bats (Supersedes APM BIO-15). ***Work Areas.*** Suitable bat habitat shall be assessed by a CPUC-approved, qualified biologist, in trees within a 50-foot buffer of active work areas, and in structures with suitable bat habitat within a 100-foot buffer of active work areas. If roosting habitat is found in a tree or structure, the CPUC-approved, qualified biologist shall define an appropriate limited or no work exclusion area surrounding the roosting habitat based on the bat species, numbers, and roost type (*i.e.*, individuals, small group, potential maternal colony) as well as in consideration of the habitat quality and duration of work related disturbance. The limited work or exclusion areas shall be approved by the CPUC's independent biologist who shall respond to PG&E's request for approval within one business day; if a response is not received, PG&E can proceed with the implementation of the proposed limited work or exclusion area, until the CPUC's independent biologist can review and approve the buffer reduction request.

The limited work or exclusion area shall not apply to construction-related traffic using existing roads where the use of such roads is not limited to project-specific use (*i.e.*, county roads, highways, farm or other private roads, etc.) and does not apply if the roost(s) is/are located in a residential, commercial or industrial area

The boundaries of the limited or no work area shall be clearly marked by the CPUC approved, qualified biologist to ensure that no vehicles or equipment physically disturb

the roost. The CPUC approved, qualified biologist shall inspect roost sites when construction is occurring at the specific work site, to ensure integrity of the limited or no work area, and ensure that the size of the area is adequate based on site conditions and construction generated noise.

Tree Pruning and Removal. Pre-construction habitat assessments shall be conducted by a CPUC-approved, qualified biologist on all trees to be removed that are 10 inches or above in diameter at breast height (dbh) to identify suitable roosting habitat, within seven (7) days of the tree removal date.

For trees to be removed that provide suitable roosting habitat features, follow-up emergence surveys and acoustic monitoring shall be conducted for one half hour prior to sunset and one hour after sunset. If bats are not detected emerging from trees and acoustic activity indicates that no roosting bats are present, no additional measures are required.

If bats are detected emerging from trees or acoustic activity indicates that roosting bats are present, the potential presence of a maternal colony shall be assessed. If a maternal colony is found in a tree, no work shall occur within 50 feet of the tree.

Suitable roost trees shall be removed, to the extent practicable, outside of April to September to avoid impacts to reproductive bats. If vegetation-removal activities shall be conducted during the bat reproductive season the following techniques shall be implemented to passively vacate bats from roosts:

- Trim off all limbs without roost features to alter the air flow and temperature around the roost feature thus encouraging bats to vacate roost features on their own. The tree shall then be left for about 24 hours to allow for the bats to move to another roost site.
- Create noise and vibration disturbance on the tree (*e.g.*, concussive hitting with equipment and/or chainsaw cutting) for at least 15 minutes before carefully opening up potential crevices and cavities for inspection and clearance.
- If bats may be in a tree bole or heavy branch cavity, attempt to expose them and allow escape. For example, if the cavity cannot be investigated by the CPUC approved, qualified biologist, then carefully cut successive sections above the cavity to open it, waiting up to 10 minutes in between each cut, and determine if it is empty or allow any bats inside to crawl or fly out.

Reporting. All bat roosts in trees shall be documented and reported through the mitigation monitoring compliance and reporting program (MMCRP).

San Francisco Dusky-footed Woodrat. San Francisco dusky-footed woodrats could occur in or near work areas within forest and shrub habitats. Project grading and excavation activities could impact woodrat nests if they were to occur within the work area. A significant impact would occur if the project were to result in the mortality of several woodrats within a population, thus

having an effect on the population either directly or through the destruction of occupied houses without replacement of the houses. The following mitigation measure would be implemented to reduce effects to less than significant levels.

> **Mitigation Measure Biology-15: Avoidance and Minimization of Impacts to San Francisco Dusky-footed Woodrat (Supersedes APM BIO-16).** A CPUC approved, qualified biologist shall conduct a pre-construction survey to identify potential San Francisco dusky-footed woodrat houses within the proposed project work areas and within 5 feet of the edge of the work areas in order to avoid direct take of woodrats. Woodrat houses found within the work site or within 5 feet from a work site shall be flagged or fenced for avoidance. If impacts to a woodrat house located within a work site are unavoidable, a CPUC-approved, qualified biologist, prior to construction and outside of breeding season (April through June), shall dismantle the house by hand, removing the materials layer by layer to allow for adult woodrats to escape. If young are present and found during the disassembling process, a CPUC-approved, qualified biologist shall leave the site for at least 24 hours to allow for the rats to relocate their young on their own. This step shall be repeated as needed until the young have been relocated by the parent woodrats. Once the nest is vacant, the disassembly process shall be completed and the nest sticks shall be collected and moved to another suitable close-by location to allow for nest reconstruction. Piles of cut vegetation/slash shall be retained near the work site prior to nest dismantling, to provide refuge for woodrats that may become displaced (Lee and Tietje 2005).

Operation and Maintenance

Operation and maintenance of the project would not require additional people, vehicles, or disturbance within the project corridor. Operation would include periodic inspections and maintenance of the line by both air and land using existing access roads. A 30-foot by 15-foot work area around each pole would be maintained free of shrubs and larger vegetation to allow for pole inspection.

Rare Plants

Operation and maintenance could impact rare plants if a plant were to occur within a pole maintenance area. Mitigation Measures Biology-1 and Biology-2 would be implemented prior to any maintenance work that would involve vegetation removal or ground disturbance within areas that could support rare plants. Impacts would be less than significant with implementation of these measures.

Animals

Operation and maintenance would not require ground disturbance. Some maintenance of vegetation around each pole would be required. Impacts to fish species would not occur as no work would occur within waterways. Sedimentation of waterways would not occur as operation and maintenance would not involve ground disturbance near waterways that could result in runoff.

Impacts to Santa Cruz long-toed salamander could occur. Salamanders could be harmed or killed by any maintenance activity that involves vegetation removal. If Santa Cruz long-toed salamanders are present, Mitigation Measures Biology-7, -8, -9, -10 would be implemented to minimize effects from operation and maintenance to less than significant levels.

Avian species could be impacted by noise during maintenance activities if maintenance includes use of noise-generating equipment. The measures identified in Mitigation Measures Biology-11, -12, and -13 must be implemented during maintenance activities that generate noise to reduce impacts to less than significant levels. Impacts to bats and dusky-footed woodrats would also be less than significant with implementation of Mitigation Measures Biology-14 and -15 for any vegetation removal.

There is a potential for impacts to individual birds from collision with the power lines or structures. The project includes the addition of new conductor along the Northern Alignment and more lines at a greater height along the Cox-Freedom Segment. The project has been designed, however, to minimize risk of avian collisions per APM BIO-13. Impacts would be less than significant.

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 CDFW or USFWS?

Construction

Sensitive habitats in the project corridor include riparian areas and coastal scrub.

Riparian Habitat

Coastal riparian habitat is located along creeks within the project corridor, as shown on Figures 3.4-1 and 3.4-2. The proposed project would not include earthwork within riparian areas. The power line would span riparian areas and all TSPs and wood poles would be located outside of riparian habitat. Riparian vegetation may be trimmed in the vicinity of the staging area/landing zone west of Pinto Lake Park and in other areas for adequate clearance under the new line. The trimming of riparian vegetation would not have a significant impact on riparian habitat. Trimming would remove a minimal amount of tree mass compared with surrounding habitat and would not result in the death of the vegetation or habitat changes. No trees would be removed within coastal riparian habitat. There would be no ground disturbance within riparian habitat. Construction of the project would not be expected to introduce invasive plants to riparian areas because there would be no ground disturbance within the riparian area. Any impact from the potential introduction of invasive vegetation to riparian habitats would, therefore, be less than significant.

There is the potential for indirect impacts to riparian habitat through increased erosion and sedimentation as a result of land disturbance associated with project construction. Impacts from erosion and sedimentation on riparian habitat would be less than significant with implementation of BMPs as identified in APM HYD-01. The project would involve more than 1 acre of earthwork and, therefore, PG&E would be required to obtain coverage under the State

Water Resources Control Board Construction General Permit. The permit would require preparation and implementation of a SWPPP, which would specify BMPs to reduce impacts from sedimentation. Impacts would be less than significant.

Coastal Scrub

Coastal scrub is identified as a sensitive habitat by the Conservation and Open Space Element of the Santa Cruz County General Plan. Up to 0.63 acres of coastal scrub would be temporarily impacted during construction and a maximum of 0.01 acres would be permanently impacted. The temporary impacts would primarily occur within pole work areas, pull sites, landing zones, and along overland access routes where existing vegetation would be removed to create work space for project construction. Removal of coastal scrub habitat would be considered a significant impact because of its rarity and protected status. The following mitigation measure would be implemented to minimize effects to coastal scrub to less than significant levels.

> **Mitigation Measure Biology-16: Avoidance and Minimization of Impacts to Coastal Scrub (Supersedes APM BIO-22)**. Before construction begins, the boundaries of coastal scrub located within work areas shall be delineated with clearly visible flagging or fencing, or otherwise marked for avoidance. The flagging, fencing, and/or other marking shall be maintained in place for the duration of construction at each location until work is completed at that site, and these areas shall be avoided. If any coastal scrub habitat cannot be avoided, the CPUC-approved, qualified biologist shall conduct a pre-activity survey to ensure no listed or protected species are present and shall then provide guidance to the crew concerning additional measures that may be required to conduct the work. Impacts and disturbance to coastal scrub occurring as a result of work activities shall be documented and addressed through the implementation of the Revegetation, Restoration, and Monitoring Plan.
>
> Coastal scrub habitat areas that are permanently disturbed by the project shall be replaced off-site with new habitat at a 2:1 ratio by funding one or more recognized and County approved re-vegetation/restoration organizations. Alternatively, the losses of Coastal scrub shall be compensated for by enhancement of existing habitat (e.g., through removal of non-native species from existing coastal scrub habitat) at a 3:1 ratio within suitable habitat on properties for which PG&E can obtain property owner consent and within suitable habitat on PG&E's properties in the area(*e.g.,* Rob Roy Substation). PG&E shall begin the removal of non-native and invasive species from PG&E suitable habitat in the 1 or 2 years prior to construction commencement to initiate the enhancement efforts. These efforts shall then continue together with regular monitoring until non-native and invasive species have been reduced by 70% from initial conditions, up to a maximum period of 2 years following the end of construction activities. If non-native and invasive species removal efforts have not met the success criteria of 70% reduction by the end of the two year monitoring period, PG&E shall coordinate with CPUC and the County to determine alternative measures (*e.g.*, development of educational materials/programs, signage, etc.). Coastal scrub areas within suitable upland habitat for the Santa Cruz long-toed salamander that support burrows and are located outside of a

previously identified and fenced work area shall not be disturbed during construction activities.

Operation and Maintenance
Areas measuring approximately 30 feet by 15 feet around all TSPs and wood poles would be maintained and kept clear of shrubs and other vegetation for purposes of inspection during the operation and maintenance phase of the project. Operation and maintenance would not result in any additional impacts to sensitive habitats, and no impacts would occur.

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
Wetlands and other waters potentially subject to jurisdiction under Section 404 of the Clean Water Act have been identified within the project corridor as shown on Figures 3.4-1 and 3.4-2. Construction of the proposed project would impact approximately 0.85 acres of wetland, including 0.02 acres of seasonal wetland and 0.83 acres of freshwater emergent wetland for project access. These wetlands are subject to federal protection under Section 404 of the Clean Water Act. PG&E would obtain permits from the ACOE and RWQCB for the discharge of fill materials to waters of the U.S. Loss of wetlands would be small and would not represent a substantial adverse impact. Permits would require compensation or restoration to further limit impacts.

Impacts to wetlands would be further reduced through the implementation of several APMs and mitigation measures that reduce the risks of introducing invasive species to the site, accidentally crushing vegetation by straying outside of the designated work areas, spilling hazardous materials on the site, providing environmental awareness training to all construction workers on the site, and implementing all appropriate best management practices as outlined in APM HYD-01 (Section 3.9). BMP requirements for the project that would reduce sedimentation to less than significant levels. BMPs include use of straw waddles, mulching, installation of silt fencing, use of brooms and shovels to clean sites, and use of construction entrances and exits to minimize sedimentation of roadways and other areas.

Operation and Maintenance
No poles or other project components would be installed within wetlands or waterways and thus no activities would occur in wetlands during operation or maintenance of the project. Operation and maintenance of the project would have no impact on potential wetlands or water resources.

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?

Terrestrial Species

The power line corridor would remain open to species movement and migration during and after construction. Power poles would be approximately 350 feet apart along the alignment. Species could move around poles and work areas during construction and operation of the project. Terrestrial species could become entrapped, however, in open excavations. Mitigation Measure Biology-17 would be implemented to reduce effects to individual migrating animals to less than significant levels.

> **Mitigation Measure Biology-17: Protection and Inspection of Open Excavations for Entrapped Wildlife (Supersedes APM BIO-17).** Excavations that may act as pitfall traps (i.e., those exceeding 6 inches in depth) shall be secured in one of the following ways to ensure that animals do not become entrapped:
>
> - Covers may be used to completely cover exposed holes; Covers shall be strong enough to prevent wildlife from falling into the excavations and shall be secured to prevent burrowing underneath the covers.
> - Fencing may be used; in biologically sensitive areas, the fences around excavations shall provide one way passage for small animals to exit the immediate work area
> - Escape ramps may be used for excavations greater than 6 inches in depth
> - Existing pole excavations shall be inspected before they are filled to ensure the absence of wildlife.
>
> If a special-status species is located in the excavation and cannot escape, the CPUC approved, qualified biologist shall safely stop all construction activities in the immediate work area. The PG&E Project Biologist shall contact CDFW and/or USFWS (as appropriate, depending on the species' listing status) and PG&E shall comply with the recommendations provided by the resource agencies. If guidance from the resource agency cannot be obtained immediately, the CPUC approved, qualified biologist shall ensure that the species does not suffer any distress by implementing measures such as:
>
> - Provide appropriate shade coverage
> - Protect from/avoid sun and heat exposure
> - Avoid the generation of human related disturbance within proximity to the species location
> - Protect from possible predation
> - For amphibians - provide a moist environment through the use of wet sponges or locally found wet moss

Some of the project activities on land, including vegetation clearing, grading, and pole installation, could generate noise, which could disturb nearby wildlife and temporarily deter

them from the construction areas. The short-term nature of the disturbance and the abundant suitable habitat surrounding the project corridor for daily movement, migration, or dispersal would result in less than significant impacts to terrestrial movement or migration during project construction and operations and maintenance.

Fish

No project related activities would be conducted within Corralitos Creek, a migratory corridor for steelhead south-central DPS. The project would not increase the rate of sedimentation to Corralitos Creek or introduce invasive species to the riparian area (since there would be no vegetation removal within the riparian corridor). APM HYD-01 (Section 3.9) outlines BMP requirements for the project that would reduce sedimentation to less than significant levels, ensuring that sedimentation of Corralitos Creek would not occur. BMPs include use of straw waddles, mulching, and installation of silt fencing. There would be no impacts to fish migration in the project corridor from project construction or from project operation and maintenance.

Avian Species

The project corridor is located within the Pacific Flyway, a major bird migration corridor, and construction activities have the potential to impact bird movement through the project corridor. The potential impact to avian migration would be reduced by APM BIO-13, which requires implementation of design features that would reduce the risk of bird collisions. The project would not significantly impact long-distance bird migration because of the localized nature of the activities and existence of significant other space nearby for birds to migrate and move through the project corridor. Impacts to nesting and migratory birds are also addressed in detail under checklist question A.

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

The project would not be subject to Santa Cruz County's Tree Ordinance, since the ordinance only applies to the coastal zone and the project does not fall within this area. Coastal scrub is identified as a sensitive habitat by the Conservation and Open Space Element of the Santa Cruz County General Plan. Mitigation Measure Biology-16 minimizes impacts to coastal scrub to less than significant levels by requiring surveying and compensation for any loss of coastal scrub habitat.

Operation and maintenance of the project would not conflict with any local policies or ordinances protecting biological resources. The operation and maintenance of the project would involve activities that are similar to those required for the current power line. Occasional tree trimming would likely be required, but it is not expected that additional trees would be removed for project operation or maintenance. The operation and maintenance of the proposed project would thus not conflict with any local policies or ordinances protecting biological resources.

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?

There is no adopted HCP or comparable conservation plan that covers the project corridor. There would, therefore, be no impacts related to an HCP or comparable conservation plan.

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3.5 CULTURAL RESOURCES

3.5.1 Environmental Setting

Historic and Prehistoric Overview

Prehistoric Background

The California Central Coast's prehistory can be divided into six general time periods (PG&E 2012):

- ***Paleoindian Period (13,500 through 8,500 years Before Present [BP]):*** This period was marked by warming and sea level rise. Very little evidence of human occupation is found along the Central Coast of California during this period.
- ***Millingstone Period (8,500 through 5,500 years BP)****:* Sea level continued to rise through about 5,000 years BP. The flooding of the more gently sloped regions of the coastline provided ideal habitats for intertidal resources. Sites, including shell middens, are found in the area during this timeframe. Millingstone people also used interior resources and were probably highly mobile. Some Millingstone sites have been found near Elkhorn Slough, Moss Landing, and Castroville.
- ***Early Period (5,500 through 2,600 years BP):*** New land uses and social organization marked this period. Settlement of estuaries and open coast were more common. Hunting and fishing tools are found in sites from this period. Several sites with Early Period occupations are located on the Monterey Peninsula to the south of the project corridor.
- ***Middle Period (2,600 through 1,000 years BP):*** Adaptive strategies from the Early Period continued to intensify during the Middle Period with a reliance on acorns. The large size of sites dating to this period points to significant population growth. Typical tools from Middle Period sites consist of mortars and pestles; handstone and millingstones; and contracting-stemmed, square-stemmed, site-notched, and concave base projectile point forms. Trade networks are assumed to have been robust. Several Middle Period sites have been excavated to the south along the Monterey Peninsula.
- ***Middle/Late Transition Period (1,000 through 700 years BP):*** By 1,000 years BP, coastal areas appeared to have reached peak intensity. Climatic anomalies that brought extensive drought disrupted settlement and subsistence patterns. Movement from large coastal settlements to interior valleys marks this time period.
- ***Late Period (700 years BP):*** Local populations maintained an inland focus, concentrating on acorns and other terrestrial resources and living in villages in valley bottoms and beside lakes and rivers. Plant processing became popular, evidenced by the types of tools found at sites from this period (i.e., stone tools). Late Period sites in the Santa Clara Valley demonstrate an almost completely inland focus, as coastal shells disappeared from assemblages.

Ethnographic Overview

The project corridor is part of a region that was inhabited by speakers of the Costanoan—or, Ohlone—language family. Two distinct Ohlone groups, the Awaswas and Rumsen, occupied the region at the time of European contact. The territory of Awaswas speakers extended from approximately Point Año Nuevo southward to the lower Pajaro River and east to the Santa Cruz Mountains. It included the present-day cities of Santa Cruz and Scotts Valley, as well as the communities of Aptos, Corralitos, and possibly Watsonville. Rumsen speakers occupied an area to the south extending from Point Sur northward to the lower Pajaro River, and included the present-day cities of Monterey, Seaside, Marina, Carmel, and possibly Watsonville. Ohlone groups occupied permanent villages and seasonal settlements, with the permanent settlements located on higher ground inland.

As missions became established in the area—Mission of San Carlos Borromeo de Carmelo in 1770, Mission Santa Cruz in 1791, and Mission San Juan Bautista in 1797—local Ohlone populations began to decline. This decline was due in large part to newly introduced diseases, but also to environmental changes as the Spanish altered the landscape such that traditional resources became increasingly curtailed. Land use near the missions was converted to farming and livestock grazing, and local streams and creeks were likely diverted and claimed for the ranches, farms, and orchards. Wild game was forced to compete with the Spanish cattle herds, and the vegetation and freshwater resources suffered severe damage due to livestock overgrazing. Eventually, these conditions forced the Ohlone people into the mission system, and the survivors learned to adapt to the new economy.

Historic Background

Santa Cruz County surrounds the northern portion of Monterey Bay, and was one of the original counties of California, created at the start of statehood in 1850. The region experienced its first non-native contact in 1769, when the Gaspar de Portola land expedition conducted reconnaissance for the King of Spain from its headquarters in Mexico. These explorers found good sources of redwood in the area and established three missions: Mission Santa Cruz, Mission San Carlos Borromeo de Carmelo, and Mission San Juan Bautista. None of these missions are near the project corridor.

By 1784, concessions for ranchos were awarded by the King of Spain or his Viceroy in Mexico for farms or cattle operations. Mexico gained independence from Spain in 1822 and took over control of its mission territories in the area that is presently California. Former mission lands were released for secular development starting in 1833. Government officials, former soldiers, and citizens could apply for grants on this land. Seven ranchos were established from the land grants based on the lands of Mission Santa Cruz, Mission San Carlos Borromeo de Carmelo, and Mission San Juan Bautista. The project corridor includes part of two of these Mexican land grants, including Laguna de las Calabazas (2,305 acres granted in 1833) and Los Corralitos (15,400 acres granted in 1823). Most who received the land grants raised cattle for hide and tallow, and typically used Native Americans as laborers and domestic workers. This subsistence economy resulted in very slow population growth and land development.

Increasing tensions between the United States and Mexico over territorial boundaries culminated in war between the two countries. The war ended in 1848 when Mexico ceded the territory of California to the United States under the Treaty of Guadalupe-Hildago. The U.S. military took over provisional control until California statehood was proclaimed in September 1850. The region experienced significant population growth with the discovery of gold in the Sierras in 1848. Population growth accelerated after California became a state. Watsonville, the largest population center near the project corridor, was founded during this period in 1852 and incorporated in 1868. Benjamin Hames purchased several hundred acres of Rancho Corralitos in 1855 and built a flour mill there with his brother. Hames Road today is a reminder of the Hames family's role in the growth of the area.

The town of Corralitos, just north of the project corridor, was settled by the 1860s and developed around an economy initially based on the harvesting of redwood lumber from the local forests. Corralitos—or, "little corral"—is the flat expanse of land surrounded by redwood-covered hills that was occupied by Ignacio Coronel in 1836 and granted to Jose Amesti in 1844. Amesti's heirs claimed and received a patent to 15,440 acres in 1861. By 1865, several families had settled in Corralitos and the surrounding hills and valleys.

By the late 1880s, several prominent families had settled in the area, including the Cox and Day families, after which Cox Road and Day Valley Road are presently named. The Cox family moved from Michigan to the Pajaro township region between 1880 and 1900 and started farming there. The Day family arrived around 1869 when Darius Day started mining in Pajaro Township. He began farming in the project vicinity by 1880. A year later, he founded their private cemetery located in what is now the Forest and Meadows subdivision at the corner of Meadow Road and Downing Drive. This cemetery contains the plots of 118 Day relatives.

Small subdivisions have been constructed in the project vicinity within the last 50 years, infilling large tracts of former ranch lands. This infill increased during a building boom in the 1970s when professionals from San Francisco, Monterey, and Carmel began building country homes in the area. Corralitos, for instance, became known as an upscale community during this time. Roy R. Day sold off a large portion of family land in 1972, which was later developed into the Forest and Meadows subdivision. He recorded the survey of their family cemetery before selling the property, and this cemetery today remains unchanged in the housing tract and is managed by the Pajaro Valley Cemetery District. Land had become costly by the 1990s, leading builders to tear out apple orchards for new home sites. Today, the region around the project corridor is largely a bedroom community with scattered farms and houses with acreage for horses.

Archaeological and Historic Resources

Definition of Archaeological and Historical Resources

Cultural resources in the State of California are recognized as non-renewable resources that require management to assure their benefit to present and future Californians. The California Environmental Quality Act (CEQA) requires analysis of a project's effect on historical and

archaeological resources. CEQA Guidelines Section 15064.5 defines the term "historical resource" as follows:

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 resources 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 on the CRHR, including the following:
   - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
   - Is associated with the lives of persons important in our past;
   - Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
   - Has yielded, or may be likely to yield, information important in prehistory or history.

The term "unique archaeological resource" has the following meaning under Public Resources Code Section 21083.2((g):

> 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 that 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 (PRC) Section 21083.2(g)].

The California Historical Resources Inventory (HRI) is maintained by the California Office of Historic Preservation (OHP). The HRI is a database of cultural resource information, including sites listed or eligible for listing on the CRHR. The HRI includes only information on historical

resources that have been identified and evaluated through one of the programs that OHP administers under the National Historic Preservation Act or the PRC. The HRI includes data on:

- Resources evaluated in local government historical resource surveys partially funded through Certified Local Government grants or in surveys which local governments have submitted for inclusion in the statewide inventory
- Resources evaluated and determinations of eligibility (DOE) made in compliance with Section 106 of the National Historic Preservation Act
- Resources evaluated for federal tax credit certifications
- Resources considered for listing in the National and California Registers or as California State Landmarks or Points of Historical Interest

Santa Cruz County Code and Santa Cruz County Historic Preservation Ordinance

The County of Santa Cruz Planning Department entered into a Memorandum of Agreement (MOA) with the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) for assistance with reviewing applications for projects that have a high potential to impact archaeological resources. The importance of the study and preservation of Native American Cultural Sites is the subject of Chapter 16.40 of the Santa Cruz County Code. Historic resources in the unincorporated areas of the County are protected through the implementation of County Code Chapter 16.42—Historic Preservation. This ordinance establishes the definition of historic resources in the County and the procedure for the designation of these resources into Santa Cruz County's own County-specific HRI. This definition coincides with the definitions used by the State of California and the federal government. The ordinance also establishes the procedures for reviewing modifications to these resources (Santa Cruz County 2012).

Records Search and Results

Archival research was conducted through the Northwest Information Center of the CHRIS at Sonoma State University in Rohnert Park to assess the project corridor's potential cultural resources. The research focused on historical events and persons associated with the project corridor and its land use history. The records search study area encompassed a 0.25-mile-wide buffer along either side of the project alignment's centerline. The 0.25 mile distance was chosen because any resources that have previously been identified within this area would give an indication of the types of resources that could be found in the project corridor since the same type of topography and use is likely within a 0.25 mile area. Base maps were examined for archaeological sites and surveys within the study area, and the following sources were reviewed:

- National Register of Historic Places
- California Register of Historical Resources
- California Inventory of Historic Resources (1976 and updates)
- California State Historical Landmarks (1996 and updates)
- California State Points of Historical Interest (1992 and updates)
- OHP's Historical Property Data File

This archival research also included review and documentation of the historical built environment of the project corridor, including the actual dates of construction of built environment features. These include:

- Pajaro Valley Historical Association, Watsonville
- Santa Cruz Historical Society, Santa Cruz
- Aptos History Museum, Aptos
- Santa Cruz County Assessor's Office, Santa Cruz
- Santa Cruz Public Library, Santa Cruz
- California State Library, California History Room, Sacramento
- California State Library, Government Publications Section, Sacramento

Written requests for information were sent to Santa Cruz Historical Society and Pajaro Valley Historical Association; no responses were received. Few cultural studies have been previously conducted in the area. In total, 11 studies were found in the records search, seven of which extend partially into the survey area (Table 3.5-1). All of the seven studies were cultural inventories for development projects. None of the seven studies documented cultural resources in their study area.

A singe historic-era resource is present within the project corridor. Day Valley Cemetery encompasses a small (0.28 acre) parcel of land near Day Valley Road. The cemetery dates to 1881 and is a private family burial site for members of the Day and Cox families and their relatives. It is listed in the HRI as an historic landmark associated with the historic theme of religion.

Archaeological Sensitivity Evaluation

Geological maps of Santa Cruz County were reviewed prior to fieldwork to assess the potential for buried archaeological resources in the project corridor. The project corridor is situated on several different geological units that vary in both age and sensitivity for buried archaeological deposits. Areas with younger alluvial deposits lain down over the last 10,000 years have the greatest potential for buried soils and, thus, buried archaeological remains. Where ancient formations are exposed at the surface, they are very unlikely to contain buried soils and archaeological deposits, except in small, localized depositional contexts where younger sediments might accumulate. These contexts, which are most likely to be found along natural drainages and fans, could contain buried cultural sites. Sediment exposures in cutbanks along the alignment might contain evidence of such sites. Figure 3.5-3 shows the geological units in the project vicinity, and indicates the relative sensitivity for buried archaeological deposits along the project alignment.

The buried archaeological site sensitivity for the project corridor was determined to be greatest in the areas that were most likely to have attracted human occupation in the past and that have Holocene-age sediments mapped at the surface. These areas include the large Holocene floodplain surrounding Corralitos Creek and the drainage leading into Pinto Lake. Also included, to a lesser extent, are the narrow Holocene floodplains in several canyons and areas of

Table 3.5-1: Archaeological Studies within the Records Search Area

Study #	In Study Area?	Title	Date	Author	Quad(s)
S-03753	No	Archaeological Impact Evaluation, the Amesti Road Sewer Project of the Freedom Sanitation District, Santa Cruz County, California. Archeological Resource Service.	1975	William Roop	Watsonville West
S-03878	Yes	Archaeological Reconnaissance, Pinto Lake County Park, Santa Cruz County, California.	1977	Archaeological Consulting and Research Services	Watsonville West
S-03945	Yes	An Archeological Reconnaissance of a Parcel of Land in Santa Cruz County, Day Valley Area, 2 miles east of Aptos, CA.	1978	Charles R. Smith	Loma Prieta
S-09629	No	Preliminary Testing of Assessor's Parcel Number 108-192-02, Corralitos, Santa Cruz County, California	1987	Anna Runnings and Trudy Haversat	Watsonville West
S-10057	Yes	Results of Phase I Archaeological Reconnaissance with Recommendations for Cultural Resource Management, Upper Green Valley Road Proposed School Site.	1988	Larry Bourdeau	Watsonville West
S-11495	Yes	Preliminary Cultural Resources Reconnaissance of Assessor's Parcel Number 51-062-04, Freedom, Santa Cruz County, California.	1990	Anna Runnings and Trudy Haversat	Watsonville West
S-24153	Yes	Cultural Resource Evaluation for the Pinto Lake County Park Project in the County of Santa Cruz.	2000	Archaeological Resource Management	Watsonville West
S-23903	Yes	California Department of Forestry Project Review Report for Archaeological and Historical Resources, Aptos High School Fuel Break 2001 VMP, Project #RXCZU-019.	2001	Bruce Beck	Watsonville West
S-24578	No	Portion of Amesti Road near its Intersection with Crow Avenue in the Corralitos Area of Southern Santa Cruz County Landslide Project	1995	Thomas Jackson	Watsonville West
S-30661	Yes	Collocation ("CO") Submission Packet, FCC Form 621, Green Valley Substation, SF-05191A. Earth Touch, Inc.	2005	Lorna Billat	Watsonville West
S-33090	Yes	Collocation ("CO") Submission Packet, FCC Form621, T-Mobile PG&E Green Valley Sub, SF-15112. Archaeological Resources Technology	2007	Carolyn Losee	Watsonville West

Figure 3.5-1: Cultural Survey Area, Map 1

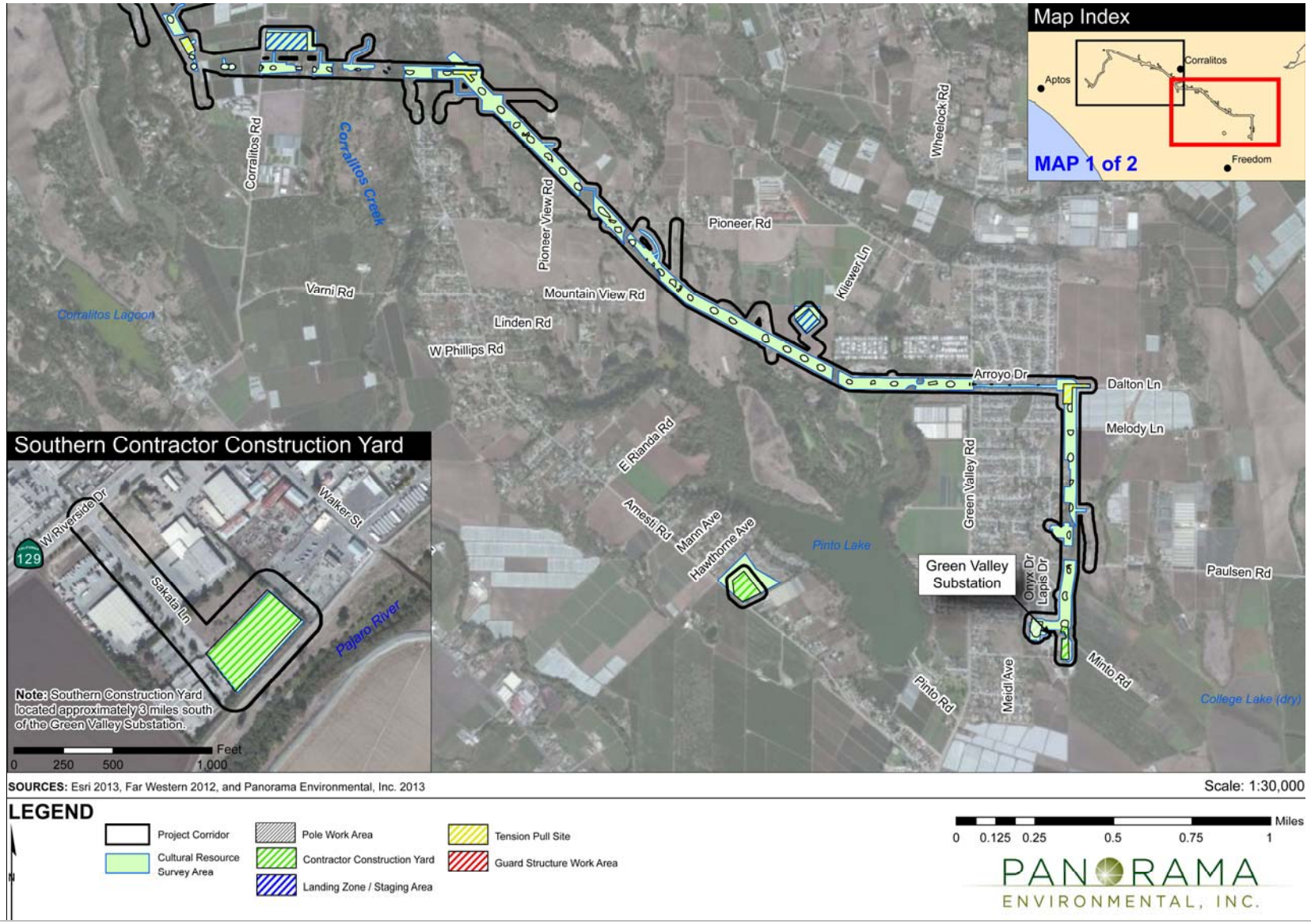
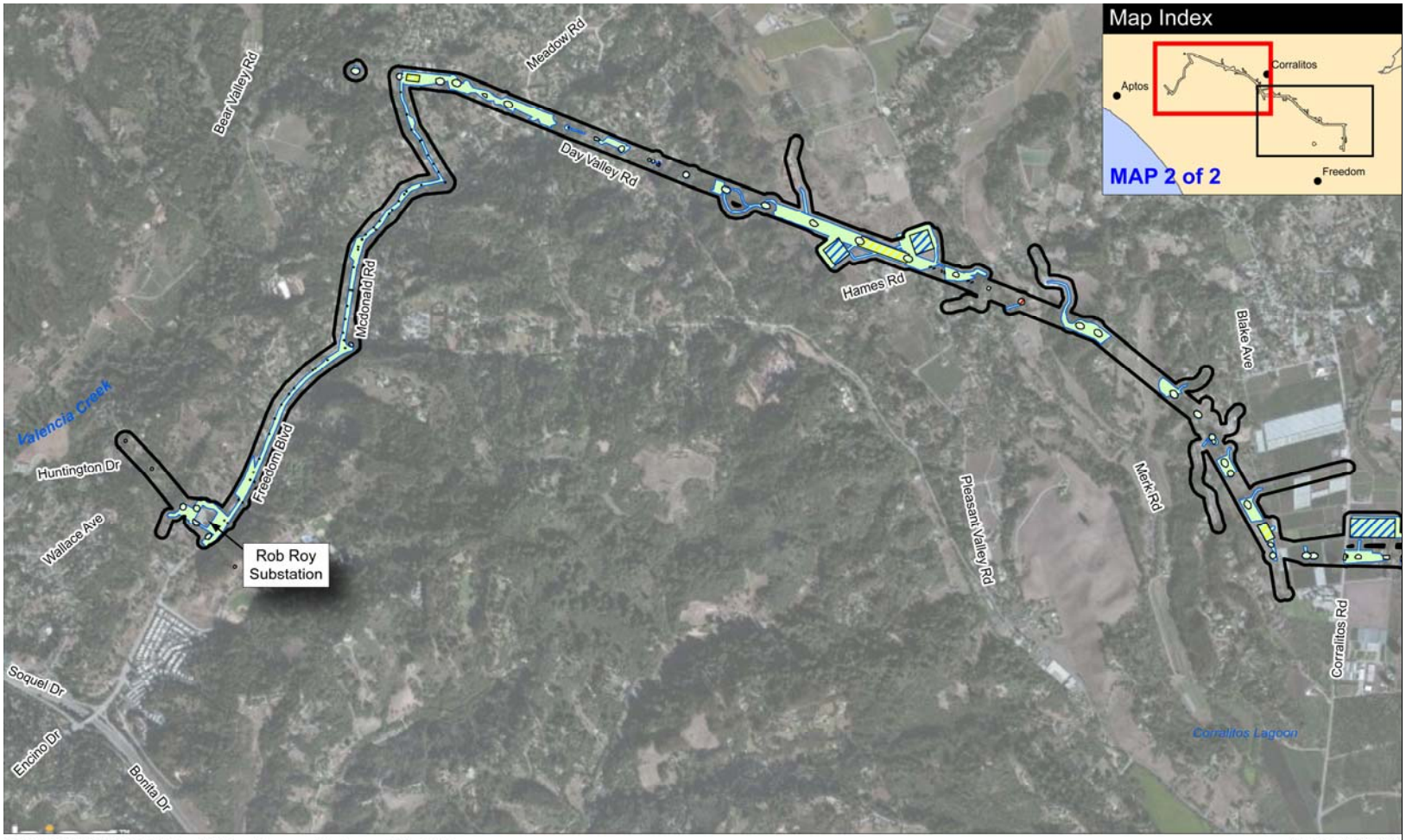


Figure 3.5-2: Cultural Survey Area, Map 2



Holocene colluvium in low-angle portions of the landscape, such as Pleasant Valley and Day Valley.

Cultural Resource Field Survey and Results

Survey Methods. Intensive pedestrian surveys for archaeological and built-environment resources were conducted within the area of direct impacts by Far Western Anthropological Group in March, May, and August of 2011 and in July 2013. The purpose of this fieldwork was to confirm the locations and update the status of previously recorded sites, as well as to obtain new field data on the presence or absence of archaeological sites in the project corridor. A focused historic survey of the properties identified as being 50 years of age or older was also conducted during the fieldwork. The areas surveyed are shown in Figures 3.5-1 and 3.5-2.

Results of Surveys. Two historic-period sites, two historic-period isolates, and 18 historic-period buildings and/or complexes were recorded during the field surveys. No prehistoric resources were found. The results of the surveys are presented in Table 3.5-2. The majority of the resources identified in Table 3.5-2 are either partially or entirely located within the project corridor; however, only one resource—site SCPL-2—is situated within an area planned to be used for construction or access road placement. SCPL-2 is potentially within a pull site temporary work area. Five of the other resources, including HR-3, HR-5, HR-12, HR-14, and HR-15, exhibit characteristics that may render them potentially eligible for listing to the CRHR. A general description of SCPL-2 and the five resources that may be potentially eligible for listing to the CRHR is included in Table 3.5-3.

Native American Consultation

The Native American Heritage Commission (NAHC) was contacted by letter on two occasions, informing the NAHC of the project and requesting a review of its sacred lands files and a list of the appropriate Native American representatives to contact for input on the project. The NAHC's response did not indicate the presence of any sensitive locations in the vicinity of the project. The NAHC provided a list of local Native American representatives that may have knowledge of cultural resources within or near the project corridor.

The 10 Native American representatives provided by the NAHC were contacted by letter, and three of the Native American representatives responded. Two of these representatives requested to be kept on the mailing list for project updates, and one of the representatives also requested that a Native American monitor be present during fieldwork. The third representative indicated that he had knowledge of cultural resource sites that have not been recorded, but the representative did not respond to subsequent requests for more information about these unrecorded resources. A detailed project update and map was later prepared and mailed to the three responding individuals, and a subsequent update was also mailed to all 10 of the Native American contacts. This update provided information concerning the contractor storage yard, as well as two other potential storage yard locations under consideration that have since been removed from the study.

Figure 3.5-3: Geologic Units and Buried Archaeological Site Sensitivity

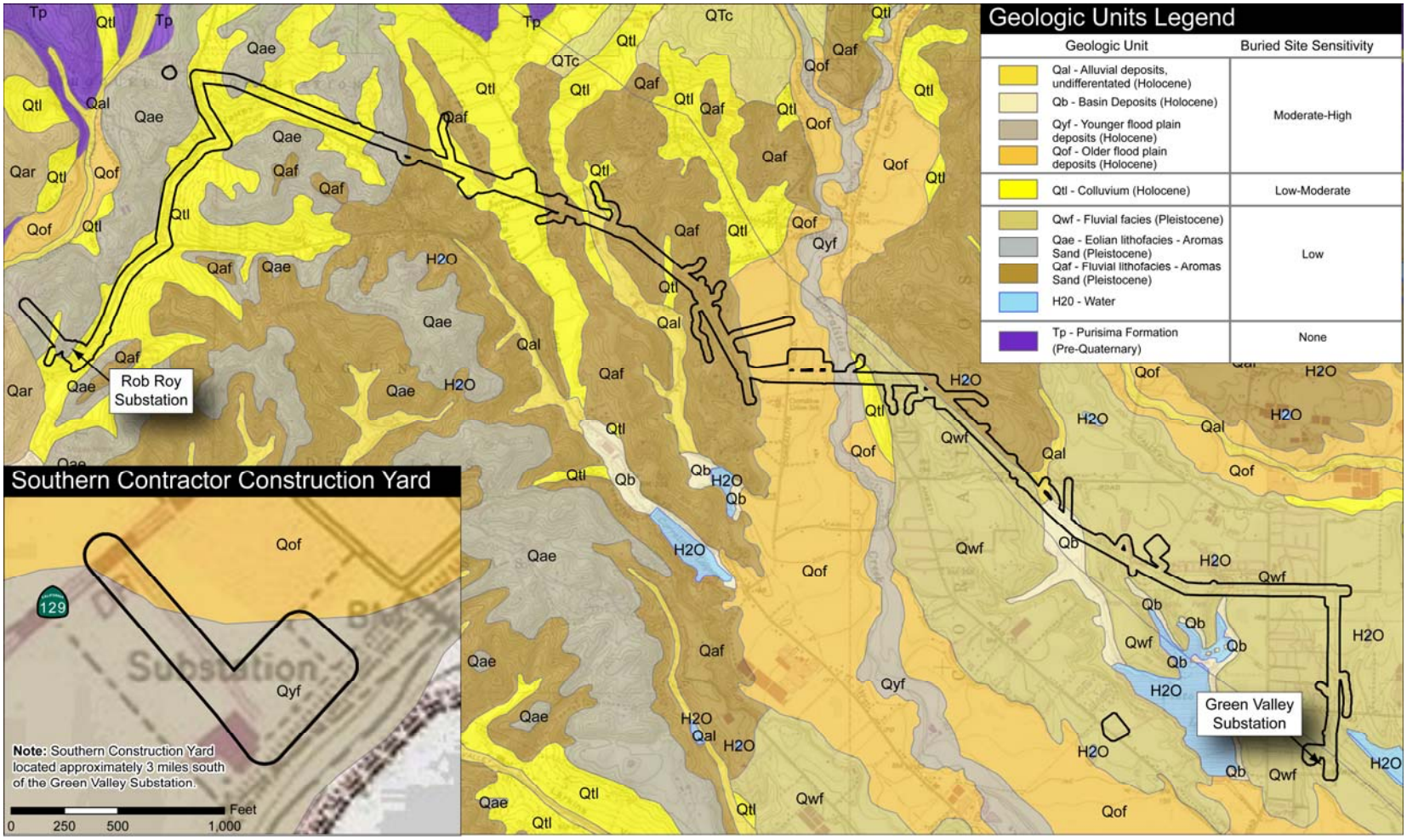


Table 3.5-2: Cultural Resources Identified within the Project Corridor

Resource	Site	Potentially Eligible for Listing in the California and/or National Register of Historic Places
SCPL-1	Historic toilet and road segment	No
SCPL-2	Historic artifact scatter	No
SCPL-3	Isolated farm equipment	No
SCPL-4	Isolated benchmark	No
HR-1	100 Littleway Lane	No
HR-2	Dalton Lane	No
HR-3	Kliewer barns	Yes
HR-4	193 Pioneer Road	No
HR-5	1909 single-family home	Yes
HR-6	Day Valley Road	No
HR-7	301 McDonald Road	No
HR-8	125 McDonald Road	No
HR-9	6910 Freedom Boulevard	No
HR-10	6550 Freedom Boulevard	No
HR-11	1191 Amesti Road	No
HR-12	Corralitos Road Italianate home	Yes
HR-13	500 Senda del Valle	No
HR-14	Apple barn	Yes
HR-15	Day Valley Cemetery	Yes
HR-16	172 Downing Drive	No
HR-17	Melody Hill Egg Ranch	No
HR-18	Amesti Road barn	No

Source: Far Western 2012

Table 3.5-3: Description of Potentially Eligible Resources that are Located within the Project Corridor

Resource Number	Description
HR-3	The Kliewer family ranch complex contains more than 15 buildings associated with the family business of raising turkeys for commercial purposes, beginning in the 1930s. Only two barns are within the project corridor. One barn is two-story front-gabled barn that appears to function as a feed and equipment storage building. The other is a one-story barn that appears to be designed to house animals. Both structures lie partially within the 300-foot-wide project corridor, adjacent to a proposed access road. They do not lie within a currently proposed work area.
HR-5	This property contains a single-family vernacular-style home constructed in 1909 and a detached garage/storage building on the east side of Cox Road. These structures do not fall within currently proposed work areas.
HR-12	The property is a one-story house that was constructed in 1925 by John and Jesse Frapwell. This resource is located within the project corridor but not within a currently proposed work area.
HR-14	This site contains a one-story barn that appears to have been constructed in the 1940s or 1950s. This barn is located within the Forest and Meadows residential subdivision and is owned by the homeowners' association as common ground. The site appears to be maintained as a community meeting area. This resource falls within the 150-foot-wide project corridor, but does not lie within a currently proposed work area.
HR-15	Day Valley Cemetery, established October 28, 1881, is a private family burial site for members of the Day and Cox families and their relatives. A total of 118 individuals were buried in this cemetery, with the most recent burial in 1978. Modern stone entrance gates facing Meadow Road include a memorial plaque. There are no buildings within the cemetery boundaries. Structures include a mausoleum and headstones. This cemetery is located in the Forest and Meadows residential subdivision at the corner of Meadow Road and Downing Drive. The cemetery falls partially within the project corridor but does not lie within a currently proposed work area.

Source: Far Western 2012

Paleontological Resources

Definition of Paleontological Resources

Paleontological resources—or, fossils—are the remains of ancient plants and animals that can provide scientifically significant information about the history of life on earth. 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. Paleontologic sensitivity is assigned based on fossil data collected from the entire geologic unit, not just at a specific site. Paleontologic sensitivity ratings are described below:

- ***High Sensitivity:*** Indicates fossils are currently observed onsite, localities are recorded within the study area, and/or the unit has a history of producing numerous significant fossil remains.
- ***Moderate Sensitivity:*** Fossils within the unit are generally not unique or are so poorly preserved as to have only moderate scientific significance.

- ***Low Sensitivity:*** Indicates significant fossils are not likely to be found because of a random fossil distribution pattern, extreme youth of the rock unit and/or the method of rock formation, such as alteration by heat and pressure.
- ***No Sensitivity:*** Origin of the geologic unit renders it not conducive to the existence of organisms and/or preservation of fossils, such as high-grade metamorphic rocks, intrusive igneous rocks, and most volcanic rocks.
- ***Indeterminate Sensitivity:*** Unknown or undetermined sensitivity indicates that the rock unit has not been sufficiently studied or lacks good exposures to warrant a definitive rating. An experienced, professional paleontologist can often determine whether the stratigraphic unit should be categorized as having high or low sensitivity after reconnaissance surveys including observations of road cuts, stream banks, and possible subsurface testing, such as augering or trenching.

Fossils are considered to be non-renewable because they are the remains of prehistoric animal and plant life. Impacts to paleontological resources are identified from high to zero depending on the resource sensitivity of impacted formations.

Paleontological Resources in the Project Corridor

A paleontological sensitivity study was conducted in October 2012 by LSA Associates, Inc. The study indicates that the project corridor contains a low to moderate sensitivity for paleontological resources. Areas with a low potential for paleontological resources are those containing wind-derived Pleistocene-age dune deposits and all Holocene-age deposits. Areas containing a moderate potential for paleontological resources are those containing stream-derived Pleistocene-age sediments. Alluvial Pleistocene-age sediments would normally be considered highly sensitive for paleontological resources, but in the case of the sediments within the project corridor, the likelihood to encounter such resources would be only moderate due to the lack of well-dated Pleistocene fossil localities reported for the County. Table 3.5-4 provides the locations of paleontological resource sensitivity for each segment of the project alignment, and Figure 3.5-4 shows the relative paleontological sensitivity of the geologic units in the project corridor.

3.5.2 Applicant Proposed Measure

PG&E proposed to implement measures during implementation of the proposed project that would reduce environmental impacts. The following relevant APM is considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include this APM as part of the project, and PG&E would have to adhere to the APM as well as any identified mitigation measures. The APM that is applicable to the cultural analysis is shown in Table 3.5-5.

Table 3.5-4: Paleontological Resource Sensitivity Locations in the Project Corridor

Approximate Milepost[1]		Sensitivity Level
Begin	End	
0.0	2.0	Moderate
2.0	2.5	Low
2.5	3.4	Moderate
3.4	4.0	Low
4.0	5.4	Moderate
5.4	5.9	Low
5.9	6.3	Moderate
6.3	6.6	Low
6.6	6.8	Moderate
6.8	8.8	Low

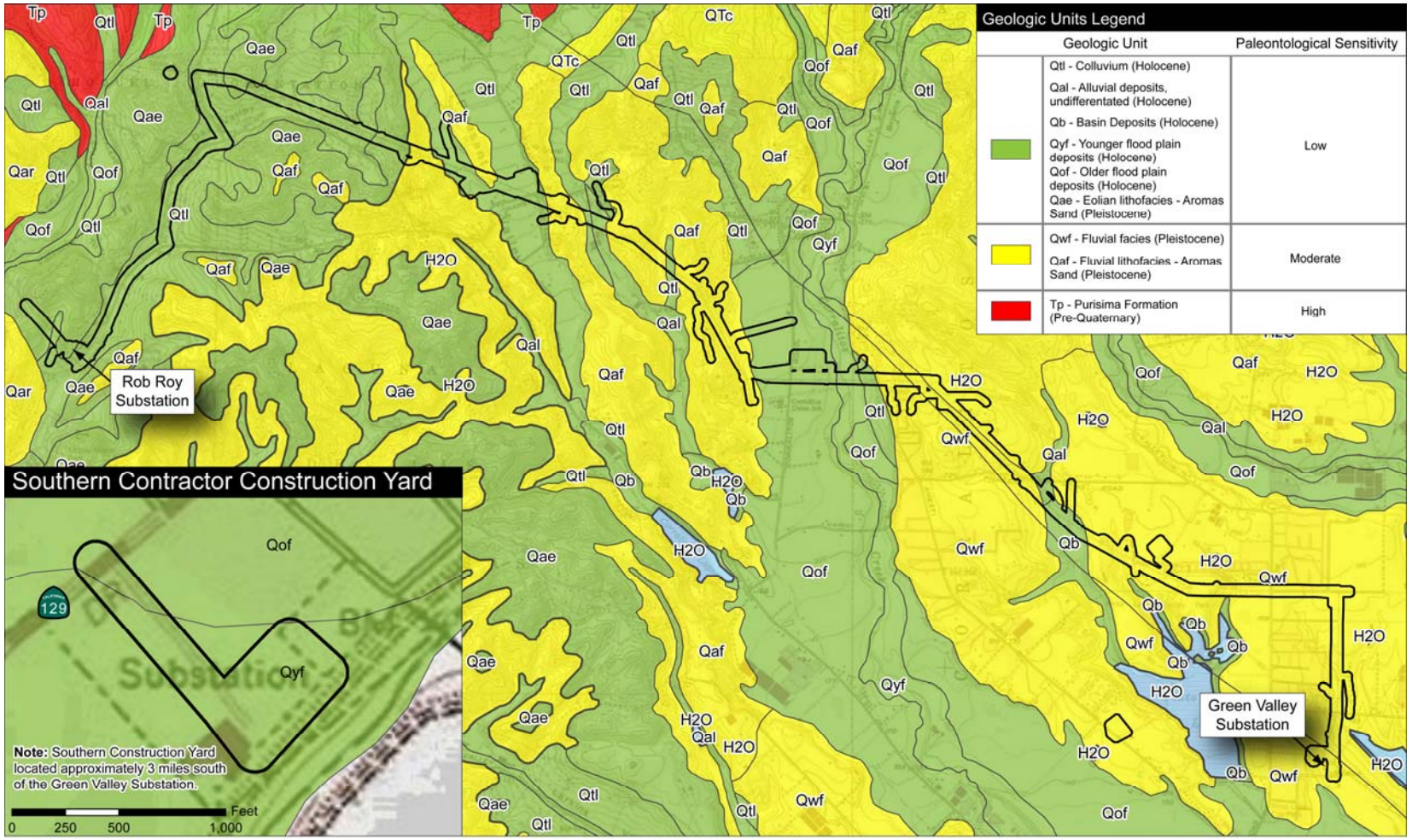
[1] Mileposts are assigned to the line starting at Green Valley Substation and ending at Rob Roy Substation. The start and end points of the mileposts shown in the table have been rounded to the nearest tenth of a mile.

SOURCE: PG&E 2012

Table 3.5-5: Applicant Proposed Measure for Cultural Resources Impacts

APM Number	Requirements
APM CUL-01. Personnel Training.	Prior to construction, all PG&E, contractor, and subcontractor project personnel will receive training regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures and to comply with the applicable environmental laws and regulations, including the potential for exposing subsurface cultural resources and paleontological resources and how to recognize possible buried resources. This training will include a presentation of the procedures to be followed upon discovery or suspected discovery of archaeological materials, including Native American remains and their treatment, as well as of paleontological resources.

Figure 3.5-4: Paleontological Sensitivity in the Project Vicinity



3.5.3 Environmental Impacts and Assessment

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 Section 15064.5?	☐	☒	☐	☐
B) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 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 Section 15064.5?

Construction

Known Historic Resources

Five historic resources (HR-3, HR-5, HR-12, HR-14, and HR-15) that are potentially eligible for listing in the California and/or National Registers of Historic Places and thus are considered significant resources as defined in Section 15064.5 (Table 3.5-2 and Table 3.5-3) were found within the surveyed portions of the project corridor (Figures 3.5-1 and 3.5-2). All five resources are located outside of any identified pole work areas, access roads, pull sites, or other project work areas or contractor storage yards. These resources, however, fall within the project corridor and therefore have a small potential for being impacted by project construction activities. Construction activities that involve ground disturbance could disrupt or damage the resources, which would be considered a significant impact. Mitigation Measure Cultural Resources-1 would be implemented to ensure that impacts to these five resources would not occur.

> **Mitigation Measure Cultural Resources-1:** Prior to commencement of construction, the limits of the project work areas within 165 feet (50 meters) of any known potentially eligible resources (sites HR-3 [Kliewer barns], HR-5 [1909 single-family home], HR-12 [Corralitos Road Italianate home], HR-14 [Apple barn], and HR-15 [Day Valley Cemetery]) shall be marked with visible flagging tape or equivalent. The construction crews shall be instructed that no vehicle access, travel, equipment staging, storage, or

other construction-related work shall occur outside the flagged areas to ensure that known historic resources are not inadvertently damaged during implementation of the project.

Previously Undiscovered Historic Resources

Previously undiscovered significant historic resources could also be impacted in the rare event that construction activities occur within the project corridor in areas that were not previously surveyed. Mitigation Measure Cultural Resources-2 would be implemented if ground disturbance is to occur within an unsurveyed area within the project corridor. The measure requires surveying these areas and avoiding any previously undiscovered cultural resources that are located during surveys. There would be no impacts to previously undiscovered significant historic resources with implementation of the mitigation measure.

Mitigation Measure Cultural Resources-2: Prior to commencement of construction within any project area, the appropriate PG&E personnel shall compare areas of proposed ground disturbance with the project GIS layers that show cultural resource survey areas. PG&E shall verify that proposed ground disturbance areas have been surveyed for cultural resources. If the areas of proposed ground disturbance have been surveyed (and no known resources are located in the area), then no additional measures are required and the work may commence.

If the areas have not been surveyed, no ground disturbance shall be permitted prior to completion of surveys by a CPUC-approved, qualified cultural resource specialist/archaeologist or historian. If a resource is found, it shall be evaluated by the qualified cultural resource specialist/archaeologist or historian to determine whether it is (1) eligible for the CRHR (and thus an historical resource for purposes of CEQA); or (2) a unique archaeological resource as defined by CEQA. If the resource is determined to be neither a unique archaeological nor an historical resource, work may commence in the area. If the resource meets the criteria for either an historical or unique archaeological resource, or both, work shall remain halted, and the cultural resource specialist/archaeologist or historian shall consult with CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). Preservation in place, *i.e.*, avoidance, is the preferred method of mitigation for impacts to cultural resources and shall be required unless there are other equally effective methods. If any found resources can be completely avoided, then evaluation of the resource is not required, subject to approval by CPUC. Other methods to be considered shall include evaluation, collection, recordation, and analysis of any significant cultural materials in accordance with a Cultural Resources Management Plan prepared by the CPUC-approved, qualified cultural resource specialist/archaeologist or historian. The methods and results of evaluation or data recovery work at an archaeological or historic find shall be documented in a professional level technical report to be filed with CHRIS. Work may commence upon completion of treatment, as approved by the CPUC.

Operation and Maintenance

After construction of the proposed project, the rebuilt power line would generally look similar to the existing line along the Northern Alignment. The appearance of the new tubular steel poles (TSP) would be similar to the existing wood poles, but would be taller than the existing poles (see Section 3.1, Aesthetics). The project would include a new single circuit 115-kV segment along Cox and Freedom Roads; however, its alignment would coincide with an existing distribution line on wooden poles. The new TSPs and wood poles in this area would be approximately 89 feet tall, where the existing poles are an estimated 39 feet tall.

The five known significant historic resources (Table 3.5-3) are found along the Northern Alignment. The visual integrity and character of the setting of these known resources is not anticipated to change since the project would not be adding new or substantially different visual elements to the landscape that would change the setting. The visual integrity and character of the landscape in the vicinity of any other significant historic resources that may be found during construction is also not anticipated to change for the same reasons. While the new circuit along the Cox-Freedom segment would include increased power line pole heights, the power line poles would be located in the same alignment as an existing distribution line, within a residential area, and therefore are not anticipated to dramatically change the visual character of the area (Section 3.1). Impacts would be less than significant.

Maintenance activities would continue to be conducted within PG&Es utility ROWs in the same manner that they have been conducted to-date. Maintenance activities would not result in substantial adverse changes to any of the historic resources in the project corridor as there would be no change to the number or location of historic resource currently exposed to current operation and maintenance activities. Operation and maintenance activities would therefore have no impact on historic resources.

B) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Construction

No archaeological sites were found during the cultural resources surveys conducted for the proposed project. In the rare event that construction activities occur within the project corridor in areas that were not previously surveyed, impacts to significant archaeological resources could occur. Impacts would be mitigated to less than significant levels through implementation of Mitigation Measure Cultural Resources-2, which requires pedestrian surveys of any areas of ground disturbance that were not previously surveyed. Any resources found during subsequent surveys would be avoided.

Construction of the proposed project also includes ground disturbance that could expose previously undiscovered buried archaeological resources. The project corridor generally exhibits a low to moderate sensitivity for buried archaeological sites, with the exception of four areas, as shown in Figure 3.5-1. The large Holocene floodplain surrounding Corralitos Creek and the drainage leading into Pinto Lake possess a moderate to high sensitivity for buried

archaeological resources, and Pleasant and Day Valleys possess a moderate sensitivity. If a previously undiscovered buried archaeological resource is encountered during ground disturbing activities, the resource could be damaged and significant impacts could result. Mitigation Measure Cultural Resources-3 would be implemented to reduce impacts to less than significant levels.

> **Mitigation Measure Cultural Resources-3:** In the unlikely event that a previously unidentified buried archaeological resource is uncovered during implementation of the project, all work within 165 feet (50 meters) of the discovery shall be halted. A CPUC-approved, qualified cultural resource specialist/archaeologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, the resource shall be documented on California State Department of Parks and Recreation cultural resource record forms and no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, the CPUC-approved cultural resource specialist/archaeologist shall evaluate the resource and determine whether it is (1) eligible for the CRHR (and thus a historical resource for purposes of CEQA); or (2) a unique archaeological resource as defined by CEQA. If the resource is determined to be neither a unique archaeological nor an historical resource, work may commence in the area. If the resource is meets the criteria for either an historical or unique archaeological resource, or both, work shall remain halted, and the cultural resources specialist/archaeologist shall consult with CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). Preservation in place, *i.e.*, avoidance, is the preferred method of mitigation for impacts to cultural resources and shall be required unless there are other equally effective methods. Other methods to be considered shall include evaluation, collection, recordation, and analysis of any significant cultural materials in accordance with a Cultural Resources Work Plan prepared by a CPUC approved qualified cultural resource specialist/archaeologist. The methods and results of evaluation or data recovery work at an archaeological find shall be documented in a professional level technical report to be filed with CHRIS. Work may commence upon completion of treatment, as approved by the CPUC.

Implementation of APM CUL-1, which requires personnel training in recognizing and mitigating impacts to subsurface or otherwise previously undiscovered cultural resources would further ensure that impacts to archaeological resources would remain less than significant.

Operation and Maintenance

Operation and maintenance activities associated with the project would be conducted in areas that were previously disturbed during construction of the project and would continue to be conducted within PG&E utility ROWs in the same manner that they have been to date. As no significant archaeological resources have been identified in the project corridor, no impacts to

archaeological resources are anticipated to occur during operation and maintenance of the project.

C) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Construction

Direct impacts to paleontological resources occur when earthwork activities, such as grading and excavation, cut into the geological deposits or formations within which fossils are buried. These direct impacts occur in the form of physical destruction of the fossil locality and the contained fossil remains.

Construction activities would involve excavation to a maximum depth of approximately 33 feet for installation of the TSPs, a maximum depth of approximately 13 feet for wood poles, and a maximum depth of approximately 14 feet for the Rob Roy Substation modification area. The Quaternary sediments present in the project corridor generally contain a low to moderate sensitivity for paleontological resources. Although the alluvial Pleistocene-age sediments in the project corridor would normally be considered highly sensitive for paleontological resources, the likelihood to encounter such resources in the project corridor is only considered moderate due to the lack of well-dated Pleistocene fossil localities reported for the County. Workers would be trained to recognize paleontological resources in accordance with APM CUL-01. If a significant paleontological resource is found during construction, the following mitigation measure would be implemented to minimize effects to less than significant levels.

> **Mitigation Measure Paleontology-1:** In the unlikely event that a previously unidentified paleontological resource is uncovered during implementation of the project, all ground disturbing work within 165 feet (50 meters) of the discovery shall be halted. A CPUC-approved, qualified paleontologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified, CPUC-approved paleontologist shall evaluate the resource and determine whether it is "unique" under CEQA, Appendix G, part V. If the resource is determined to not be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the paleontologist shall consult with the property owner and CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA. Preservation in place, *i.e.,* avoidance, is the preferred method of mitigation for impacts to paleontological resources and shall be required unless there are other equally effective methods. Other methods, with the permission of the property owner, include ensuring that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of a qualified paleontologist. All recovered fossils shall be curated at an accredited and permanent scientific institution according to Society of Vertebrate Paleontology standard guidelines (SVP [1991, 1995, 2005]) standards;

typically the Natural History Museum of Los Angeles County and UC Berkeley accept paleontological collections at no cost to the donor. Work may commence upon completion of treatment, as approved by the CPUC.

Operation and Maintenance

Operation and maintenance activities associated with the project would not differ from those for the existing lines and would be conducted in areas that were previously disturbed during project construction. No significant paleontological resources have been identified in the project corridor, and any such resources discovered during project construction would be addressed with implementation of Mitigation Measure Paleontology-1. No impacts to paleontological resources are anticipated to occur during project operation and maintenance activities.

D) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Construction

The Day Valley Cemetery is located within the project corridor but not within any currently identified project work area. The Day Valley Cemetery would be avoided in accordance with Mitigation Measure Cultural Resources-1 if work areas must be moved within the project corridor. No recorded Native American or other human remains have been identified within or adjacent to the project corridor. The potential for the unintended discovery of human remains during subsurface construction activities is therefore considered to be low. APM CUL-01 would require that project construction personnel be trained to recognize possible buried resources, and to follow applicable procedures and requirements upon discovery or suspected discovery of Native American remains. If human remains are encountered during the course of construction, PG&E would implement the appropriate notification processes as required by law. Work would be halted in the vicinity of the find in the unlikely event that Native American human remains are discovered during construction, and the County coroner would be notified, as required by California Public Resources Code Section 5097.9 through 5097.996. Implementation of APM CUL-01 and adherence to all applicable laws and regulations would ensure that potential construction-related impacts related to human remains would be less than significant.

Operation and Maintenance

The presence of human remains is considered unlikely in the project corridor. Project operation and maintenance activities would occur not differ from those for the existing lines and would occur in the same areas previously disturbed during project construction activities. Operation and maintenance activities would therefore be anticipated to have no impact on any human remains.

3.6 GEOLOGY AND SOILS

3.6.1 Environmental Setting

Geology and Physiography

Physiography and Topography

The project corridor is located just west of the southern Santa Cruz Mountains, within the Coast Ranges geomorphic province, which consists of structurally complex, sub-parallel, northwest-trending faults, folds, and mountain ranges. In this portion of the Coast Ranges Province, the Pacific plate moves north relative to the North American plate. Deformation along this plate boundary is distributed across a wide fault zone that includes the San Andreas, Calaveras, and Zayante-Vergeles fault zones.

Green Valley Substation, at the east end of the project corridor, is located on relatively flat terrain at an elevation of approximately 130 feet above mean sea level (amsl). Rob Roy Substation, at the west end of the project corridor, is at an elevation of approximately 240 feet amsl. In between, the project corridor passes through ridges and valleys of variable elevations generally ranging from 300 to 600 feet amsl. Terrain in the project corridor consists of a variety of Quaternary sediments that have, as a result of seismic strain along the San Andreas Fault zone northeast of the project corridor, been tectonically uplifted and subsequently dissected by stream channel erosion.

Geologic Setting and Units

Surficial geologic units in the project corridor consist of Holocene and Pleistocene sediments, including alluvium, colluvium (a loose mixture of rock debris at the base of a gentle slope), and floodplain, fluvial, and eolian (sand dune) deposits. The laterally extensive colluvium deposits in and near the project corridor are likely the result of erosion of a weak, poorly consolidated underlying substrate.

A map of the major geologic units in the project corridor is presented in Figure 3.6-1.

Soil Types and Hazards

Soil Types

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) has mapped soils in the project corridor. The majority of the soils in the project corridor consist of loams, loamy sands, and sandy loams. A summary of the properties of the major soil types in the project corridor is included in Table 3.6-1. Maps of the major soil units in the project corridor are presented as Figures 3.6-2A and 3.6-2B.

Expansive and Collapsible Soils

Expansive soils contain significant amounts of clays that expand when wetted and cause damage to foundations if moisture collects beneath structures. Damage from expansive soils also occurs when the soils dry out and contract.

Figure 3.6-1: Major Geologic Units in the Project Corridor and Vicinity

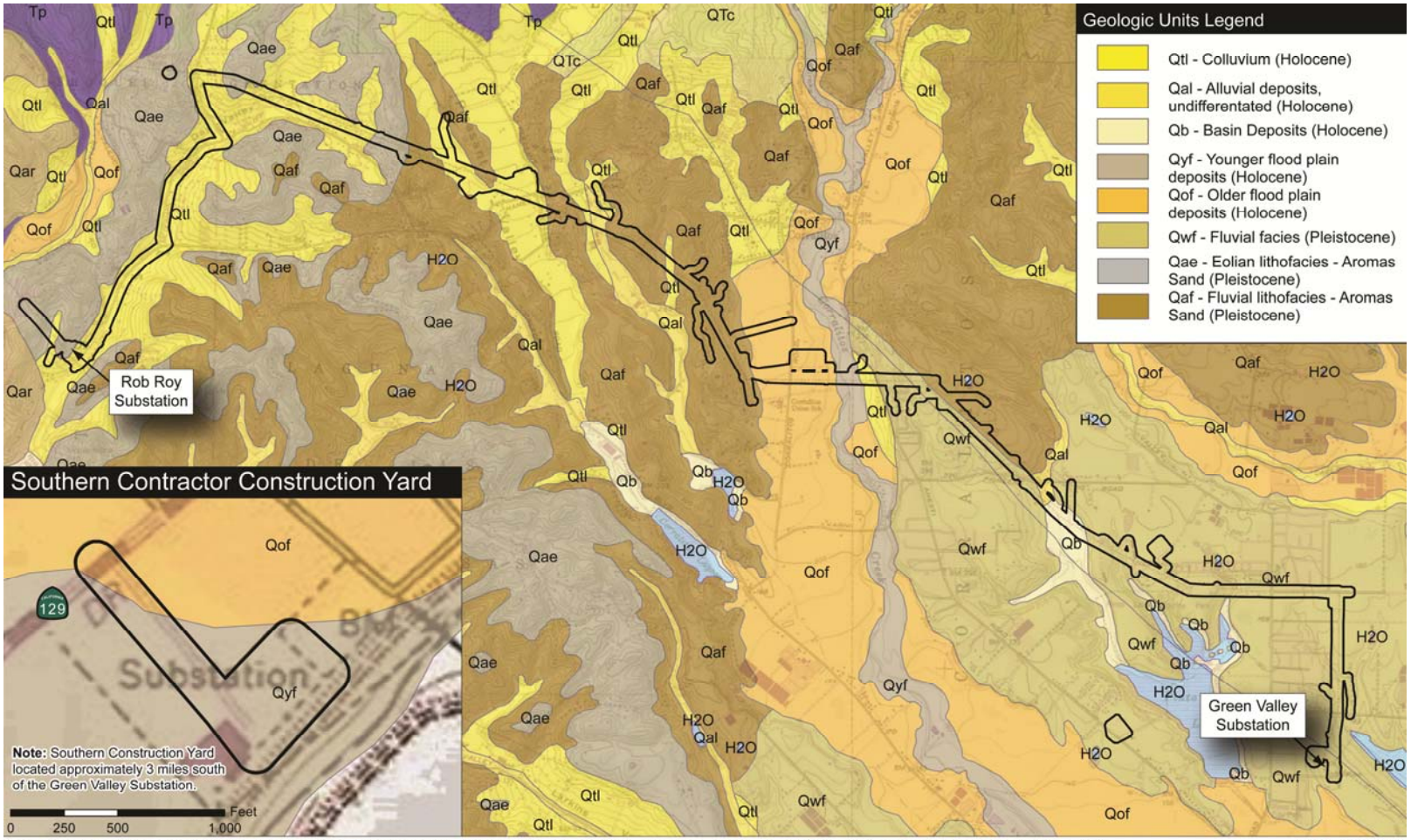


Figure 3.6-2A: Soil Units in the Project Corridor and Vicinity

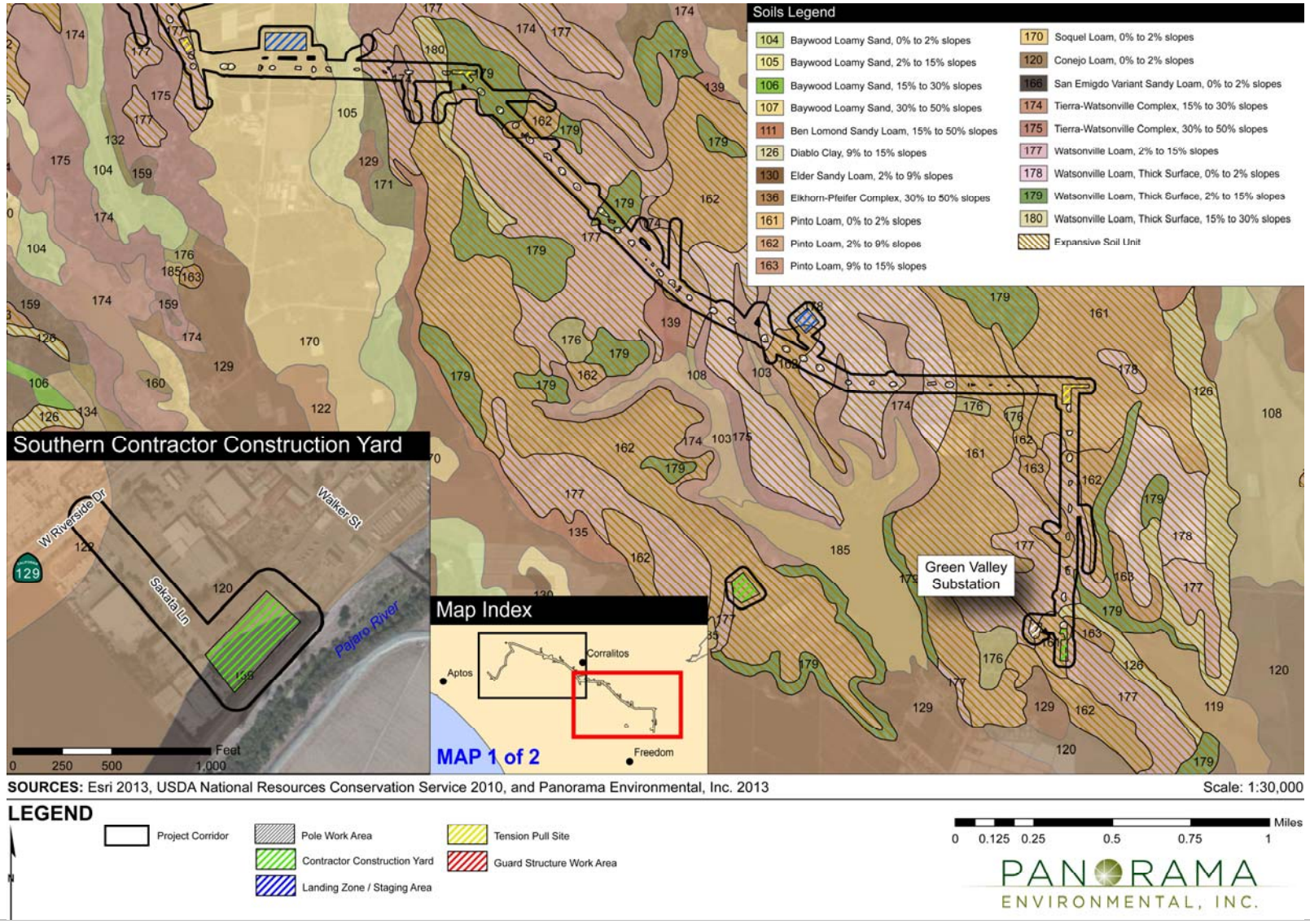


Figure 3.6-2B: Soil Units in the Project Corridor and Vicinity

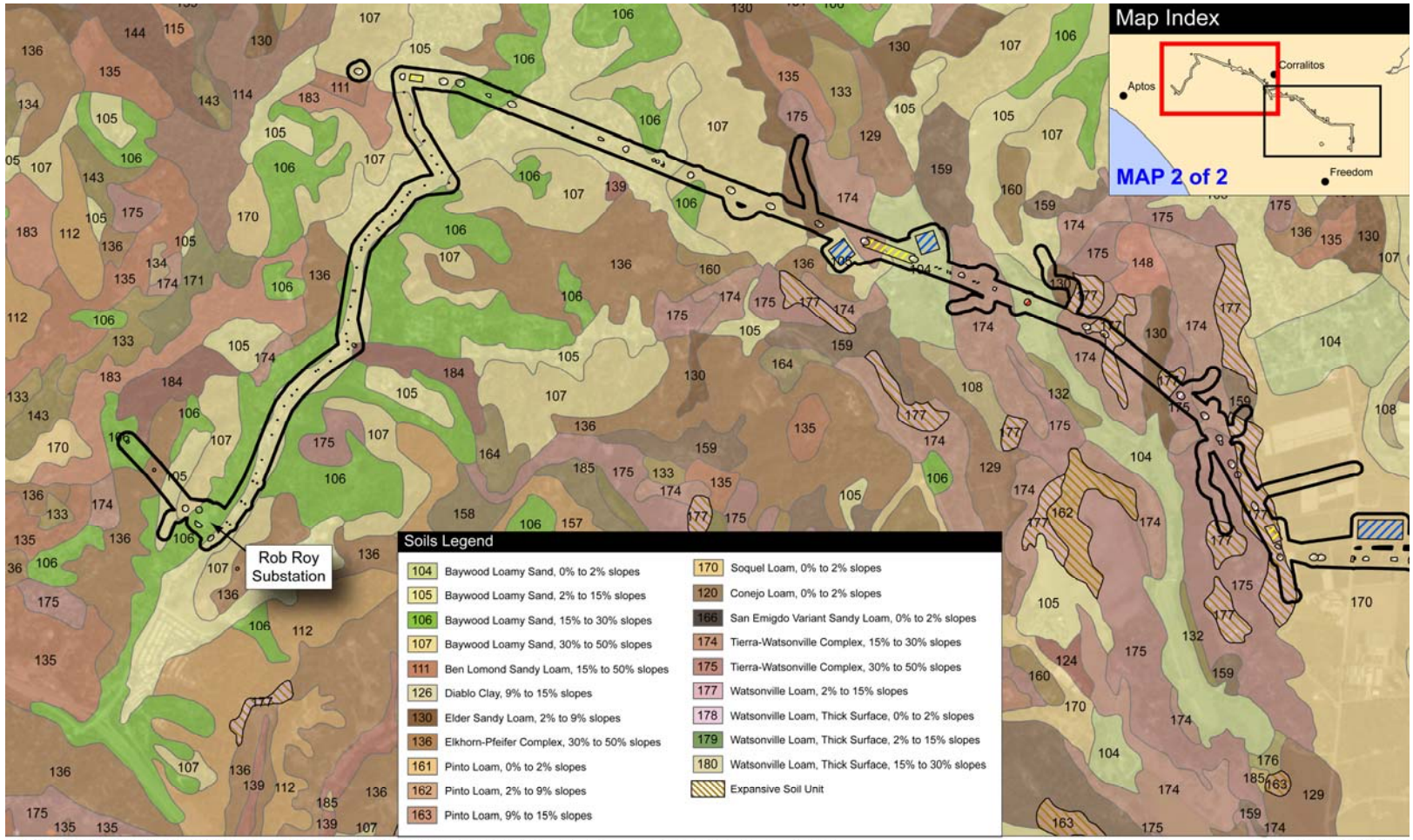


Table 3.6-1: Characteristics of Major Soil Units in the Project Corridor

Soil Series	Description	Slopes (percent)	Runoff Rate	Shrink-Swell Potential	Erosion Potential
Baywood loamy sand	Form in old sand dunes near the coast	0 to 2 2 to 15 15 to 30 30 to 50	Slow	Low	High
Elder sandy loam	Form in alluvial material derived from mixed rock sources; found on alluvial fans and floodplains	2 to 9	Slow to moderate	Low	Low
Pinto loam	Form from alluvial parent material and/or marine deposits; found at claypan ecological sites	0 to 2 2 to 9 9 to 15	Moderate	Low (surface) to high (subsurface)	Moderate
Soquel loam	Form in alluvium derived from sedimentary rocks; found in narrow valleys and on alluvial fans and plains	0 to 2	Slow to moderate	Low	Low
Tierra-Watsonville complex	Form in alluvial material from sedimentary rocks; found on dissected terraces and low hills	15 to 30 30 to 50	Rapid	Low to moderate	Moderate to high
Watsonville loam	Form from alluvial parent material in the form of marine terraces; found on till plains, uplands, and terraces	2 to 15	Rapid	Low (surface) to high (subsurface)	Moderate
Watsonville loam, thick surface	Form from alluvial parent material in the form of marine terraces; found on till plains, uplands, and terraces	0 to 2 2 to 15 15 to 30	Rapid	Low (surface) to high (subsurface)	Moderate

Source: NRCS 2012

A large part of the eastern portion of the project corridor, generally between the communities of Corralitos and Freedom, is located in areas underlain by expansive soils. Other localized areas of the project corridor are also located on expansive soils (*e.g.*, west of Corralitos Creek) (Santa Cruz County 2010). Areas of expansive soils are shown on Figure 3.6-2B.

Soil collapse occurs when increased moisture weakens chemical or physical bonds between soil particles, which allows the soil structure to collapse and the ground surface to subside. Collapsible soil deposits are not anticipated to be present in the project corridor.

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 by physical forces, such as rainfall, flowing water, wind, or

anthropogenic agents. Erosion potential is generally higher in areas with steep slopes and on sandy or clay-rich soils. Erosion potential also increases when vegetation is removed and soils are compacted. The erosion potential in the project corridor is moderate and, locally, high. The NRCS has classified most soils in the project corridor as Class 3 and Class 4 in terms of agricultural land capability, indicating they require careful management and conservation due to the risk of erosion (NRCS 2012). Many of the major soil types mapped by the NRCS have moderate to high erosion potential (Table 3.6-1), which is exacerbated by the occurrence of moderate to steep slopes, especially along the Cox-Freedom Segment (*e.g.*, near Day Valley, west of Corralitos, and the area around Rob Roy Substation).

Subsidence

Subsidence is the deep-seated settlement of soils due to mining, dissolution of subsurface carbonate rocks, and the withdrawal of fluid (oil, natural gas, or groundwater). Subsidence also can be caused by consolidation, hydrocompaction, oxidation or dewatering of organic-rich soils, and, more rarely, tectonic down-warping during earthquakes. The potential for subsidence in the project corridor is low.

Landslides

A landslide is the slipping down or flowing of a mass of land (rock, soil, and debris) from a mountain or hill. Landslide potential is high in steeply sloped areas underlain by alluvial soils, highly weathered material, thinly bedded shale, or bedrock where the bedding lanes are oriented in an out-of-slope direction (bedding plane angles that are greater than horizontal, but less than the slope face). Landslides can be caused by human activities and natural events (*e.g.*, earthquakes, rainfall, and erosion). Landslide potential in the project corridor is low overall (Santa Cruz County 2010), and the immediate project corridor does not include any mapped landslides (Brabb *et al.* 1997). The closest landslide hazard areas are located northwest of the project corridor, in the vicinity of the Forest of Nisene Marks State Park. Earthquakes can, however, result in rockfalls and/or instability on sloping terrain. The slopes most susceptible to earthquake-induced failure are those composed of highly weathered and unconsolidated materials that are moderately steep to steep. These characteristics are found in localized areas in the project corridor, particularly along the Cox-Freedom segment (*e.g.*, near Day Valley, west of Corralitos, and the area around Rob Roy Substation).

Seismicity and Faults

The Alquist-Priolo Earthquake Fault Zoning Act (A-P Act) designates Earthquake Fault Zones based on the presence of an active fault. The California Geologic Survey (CGS) has developed criteria to classify fault activity for the A-P Act. By definition, an active fault is one "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 probably 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 major regional fault systems within and adjacent to Santa Cruz County (Jennings 2010). Table 3.6-2 lists the approximate distance of the nearest fault systems to the project corridor, as well as known maximum value of magnitude (Mw_{max}) and slip rate. Fault locations are illustrated on Figure 3.6-3.

The Zayante-Vergeles fault is the closest active fault to the project corridor (CGS 2010). It trends northwest, generally parallel to the project corridor (Figure 3.6-3). Portions of the southern part of the corridor, including an area close to Green Valley Substation, intersect the fault trace. The potentially active Sargent Fault Zone and the active San Andreas Fault Zone also are located within 5 miles of the project corridor.

The project corridor is located in the Watsonville West quadrangle and the Watsonville East quadrangle. Both quadrangles include Earthquake Fault Zones, as delineated by CGS under the A-P Act (CGS 1982, CGS 1976). Prior to land division or construction of structures for human occupancy, the A-P Act requires a geologic investigation to be performed within an Earthquake Fault Zone. Although the proposed project would not involve either of these project types, the Santa Cruz County General Plan requires a geologic investigation for development within Earthquake Fault Zones to evaluate potential seismic hazards (Santa Cruz County 1994).

The 2007 Working Group on California Earthquake Probabilities (2007 WGCEP 2008) has provided estimates of occurrence of a magnitude 6.7 earthquake by 2037 for the following faults and fault zones that occur in the project study area region:

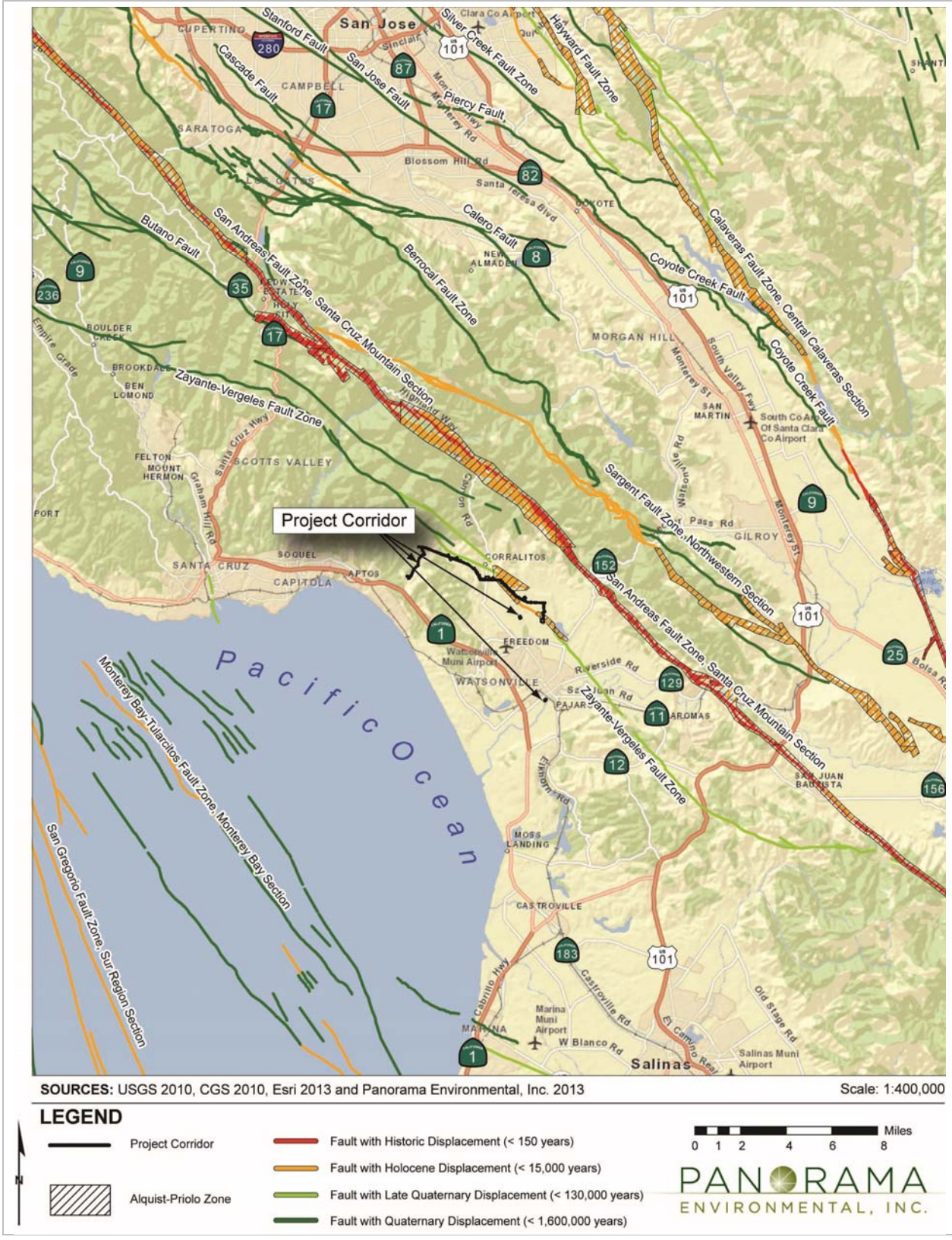
- Northern segment of the San Andreas Fault system: 21 percent probability
- Calaveras Fault: 7 percent probability
- San Gregorio Fault: 6 percent probability

Table 3.6-2: Active and Potentially Active Faults in the Project Corridor

Fault System	Approximate Distance to Nearest Segment of Fault from Project Corridor (miles)	Upper Bound Earthquake Magnitude (Mw_{max})	Slip Rate (millimeters per year)
Calaveras (Southern and Central Calaveras sections)	16	5.6–6.4	15.0
Sargent Fault Zone (Northwestern section)	5	6.8	3.0
Monterey Bay-Tularcitos Fault Zone (Monterey Bay section)	14	7.3	0.1–0.9
San Gregorio (Sur Region section)	18	7.4–7.5	1.0–5.0
San Andreas Fault Zone (Santa Cruz Mountains section)	2	7.0	13.0–21.0
Zayante-Vergeles	0	7.0	0.0–0.21

Sources: USGS 2012, Bryant 2000, 2007 WGCEP 2008, Cao et al. 2003

Figure 3.6-3: Regional Faults



The most recent major movement along the San Andreas Fault in Santa Cruz County occurred during the 7.1-magnitude Loma Prieta earthquake on October 17, 1989, which had a surface rupture of approximately 1 inch. The Loma Prieta epicenter was located approximately 10 miles east-northeast of the City of Santa Cruz, in Forest of Nisene Marks State Park. Several buildings in downtown Santa Cruz were either destroyed or damaged.

Ground Motion

Santa Cruz County is entirely located in Seismic Zone 4, as defined by the most recent California Uniform Building Code. Seismic Zone 4 areas include those nearest to active faults that are expected to experience ground motion during an earthquake of at least 0.40 g (g is the acceleration due to gravity). The faults and fault systems in the County and vicinity have the potential to produce high-magnitude earthquakes throughout the County, including along the proposed project corridor and vicinity. Portions of the project corridor are located on alluvium and colluvium, which typically experience stronger ground shaking than areas located on hard rock.

Approximate ground motion parameters were estimated for the project corridor. The parameters presented in Table 3.6-3 represent a 10 percent probability of being exceeded during a 50-year period. They are expressed as a fraction of 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 shallow subsurface within the project corridor is dominated by alluvium.

Table 3.6-3: Estimated Ground Motion Parameters in the Project Corridor

Ground Motion	Firm Rock	Soft Rock	Alluvium
Rob Roy Substation			
PGA	0.501g	0.501g	0.501g
Sa (0.2-second)	1.131g	1.131g	1.185g
Sa (1.0-second)	0.481g	0.575g	0.658g
Green Valley Substation			
PGA	0.644g	0.644g	0.644g
Sa (0.2-second)	1.434g	1.434g	1.434g
Sa (1.0-second)	0.634g	0.717g	0.827g

Source: CGS 2008

Earthquake magnitude, distance from the earthquake epicenter, and the geologic materials underlying and surrounding the area determine the intensity of ground motion (seismic shaking) during a seismic event. Structures built on bedrock experience less destructive shaking than those built on friable, granular soil deposits.

Liquefaction

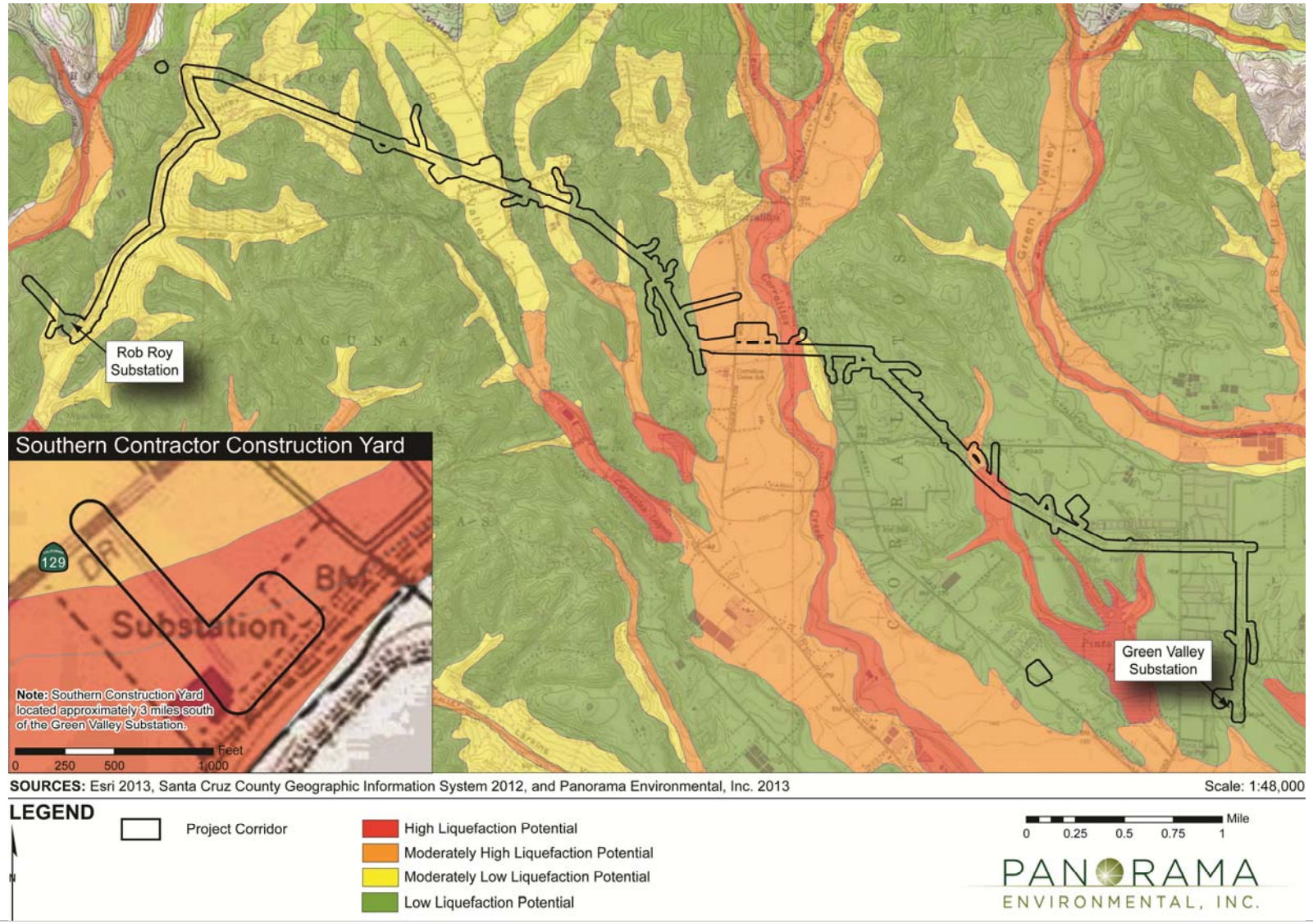
Liquefaction is a seismic phenomenon in which water-saturated, cohesionless sediments, such as sand and silt, temporarily lose their strength and liquefy. Liquefaction occurs when saturated sediments are subjected to dynamic forces, such as intense and prolonged ground-shaking during an earthquake. The project corridor is located in an area with generally low to moderate liquefaction potential. The eastern part of the project corridor, including the area around Green Valley Substation, is dominated by low liquefaction potential. Localized areas between the communities of Corralitos and Freedom have high and very high liquefaction potential (Santa Cruz County 2010). These areas generally are associated with floodplain deposits adjacent to Corralitos Creek and deposits in and immediately adjacent to Pinto Lake. Portions of the western part of the project corridor, including the area around Rob Roy Substation that is underlain by Holocene colluvium are interpreted to have a moderate liquefaction potential. Liquefaction hazards are illustrated on Figure 3.6-4.

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.

The project corridor is located in an area with generally low to moderate liquefaction potential and, therefore, generally low to moderate lateral spreading potential. The localized areas between Corralitos and Freedom that have high and very high liquefaction potential also have higher potential for lateral spreading. Portions of the western part of the project corridor, including the area around Rob Roy Substation, that are underlain by Holocene colluvium, similarly have a moderate lateral spreading potential.

Figure 3.6-4: Liquefaction Hazards in the Project Corridor



3.6.2 Environmental Impacts and Assessment

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?	☐	☒	☐	☐
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?

(ii) Strong seismic ground-shaking

Construction

The proposed project is located in a region with several active and potentially active fault zones that have a history of strong earthquakes. The project corridor also crosses the active portion of the Zayante-Vergeles fault, which has been designated as an A-P fault zone. Fault rupture in the project corridor could occur during construction, although it is unlikely. The potential for construction crews to experience impacts from fault rupture or other seismic ground shaking is minimal. In the unlikely event of an earthquake, construction workers could be exposed to hazards from strong seismic ground shaking or ground failure. Project construction would not substantially increase these risks of exposure over typical risks of exposure throughout the region. Earthquake safety training pursuant to Occupational Safety and Health Administration regulations would minimize potential for impacts to workers as much as possible. Impacts from construction would be less than significant.

Operation and Maintenance

Fault rupture along the Zayante-Vergeles fault during the lifetime of the proposed project is unlikely. However, a significant seismic event is likely to occur over the lifetime of the proposed project. The project components would be designed in accordance with CPUC General Order 95 and the Institute of Electrical and Electronics Engineers, Inc., Standard 693 (IEEE 693) to withstand damage from ground rupture or a strong seismic shaking. Areas that could be subject to strong seismic ground shaking could result in failure of the power line and result in loss, injury, or death. The following mitigation measure would require that PG&E prepare a geotechnical report to address unstable soils or landslide susceptibility, be underlain by a fault, or that could be subject to strong ground shaking and ground failure. Impacts would be less than significant with implementation of this mitigation measure.

> **Mitigation Measure Geology-1 (Supersedes APM GEO-01):** PG&E shall have a professional geotechnical engineer conduct a geotechnical investigation in areas that are suspected to have unstable soils or landslide susceptibility, be underlain by a fault, or that could be subject to strong ground shaking and ground failure. PG&E shall implement the recommendations and findings in the geotechnical report in the project's final design to minimize the effects of expansive soils, differential settling, fault rupture, strong ground shaking, ground failure, and loose and unstable soils.
>
> Where slope failure could occur, design features, such as engineered subgrades and reinforced foundations, over-excavating soft or loose soils and replacing them with engineered backfill materials, increasing the density and strength of soft or loose soils

through mechanical vibration and/or compaction, treating soft or loose soils in place with binding or cementing agents, and avoiding areas of unstable soils shall be incorporated into the project's design. PG&E shall comply with all applicable codes and seismic standards.

Implementation of the measures described in Mitigation Measure GEO-01 would ensure the proposed project design addresses and minimizes effects to people and the power line components from strong seismic ground shaking and/or fault rupture. Impacts would be less than significant.

Maintenance activities for the new double-circuit power line would be similar in scope to existing operation and maintenance activities. Impacts from exposure to seismic events or ground rupture during maintenance activities would be similar to the existing conditions and would be less than significant.

(iii) Seismic-related ground failure, including liquefaction?

Construction

The eastern part of the project corridor, including the area around Green Valley Substation, has low liquefaction potential. Localized areas between the communities of Corralitos and Freedom adjacent to Corralitos Creek and Pinto Lake have high and very high liquefaction potential. Portions of the western part of the project corridor, including the area around Rob Roy Substation, have a moderate liquefaction potential. Due to the short duration of construction (from 15 to 18 months), the low probability of a seismic event occurring during this time, and safety training for construction crews, the potential for construction crews and structures to be exposed to seismic-induced liquefaction or other types of ground failure is minimal and less than significant.

Operation and Maintenance

Seismic-related ground failure, including liquefaction, could occur during the lifetime of the new power line. Seismic-induced ground failure would not be expected to have a significant impact, however, because wood poles and TSPs would be installed to depths of 8 to 33 feet, which would minimize surficial soil disturbance effects. Stub poles and guy wires would be installed for support of wood poles in locations with challenging terrain, and TSPs would have concrete foundations. Areas with a moderate or higher ground failure potential would be stabilized during pole installation using appropriate engineering methods. If seismic-induced ground failure were to occur over the lifetime of the proposed project, it would be unlikely to affect overall power line safety because adjacent structures could support the line temporarily until restabilization and repair is completed.

Mitigation Measure GEO-01 would be implemented, which requires PG&E implement the recommendations and findings in a geotechnical report during final project design. The geotechnical report would address unstable soils and would include measures to minimize effects to people and structures from unstable soils in the event of a seismic event.

Maintenance activities for the new double-circuit power line would be similar in scope to existing operation and maintenance activities. Impacts from exposure to seismically induced ground failure during maintenance activities would be similar to the existing conditions and would be less than significant.

(iv) Landslides?

Construction
Overall landslide potential in the project corridor is low, and the immediate vicinity does not include any mapped landslides. Localized areas of the project corridor, particularly near Day Valley, west of Corralitos, and the area around Rob Roy Substation, include steeper slopes composed of highly weathered and unconsolidated materials. Several proposed project components would be constructed on slopes steeper than 15 percent (Figures 3.6-2A and 3.6-2B).

Destabilization of natural or constructed slopes could result from project construction activities, such as grading and excavation, which could contribute to landslide hazards. Minor grading for work area access could alter existing slope profiles, making them unstable. A preliminary estimate of approximately 46 acres of land would be graded and/or cleared of vegetation to reduce vegetative fuel to minimize fire hazards during project construction. The land to be graded or cleared is not contiguous and would be spread out over about 184 different work areas, not including access roads that would require minor grading. Construction-related activities would not result in large areas of ground disturbance within one contiguous area, and thus would not put the area in jeopardy of landslide during a seismic event. Due to the short duration of construction (up to eighteen months) and the low probability of a seismic event occurring during this time, the potential for construction crews and project components to be exposed to seismic-induced landslides is low and less than significant.

Operation and Maintenance
Seismic-induced landslides would not be expected to have a significant adverse impact over the lifetime of the proposed project due to the lack of areas of significant landslides and the engineering of the proposed project to minimize effects from geologic hazards. APM GEO-01 would be implemented, which requires PG&E implement the recommendations and findings in the geotechnical report in final project design to minimize the effects of identified landslide-prone areas (*i.e.*, with slopes steeper than 15 percent).

Maintenance activities for the new double-circuit power line would be similar in scope to existing operation and maintenance activities. Impacts from exposure to seismically induced landslides during maintenance activities would be similar to the existing conditions and would be less than significant.

B) Would the project result in substantial soil erosion or the loss of topsoil?

Construction
Ground disturbance would result from preparing new structure sites, augering holes for foundation and pole installation, reestablishing access roads, and, to a limited extent, use of existing unpaved access roads.

Erosion potential is generally higher in areas with steep slopes and for soils where vegetation has been removed. Most of the project corridor is on slopes between 0 and 15 percent. Limited areas in the north and west are on slopes between 15 and 50 percent. Ground disturbance on steep slopes in the project corridor increase the potential for erosion. A preliminary estimate of up to 46 acres of land would be graded and/or cleared of vegetation to reduce vegetative fuel and minimize fire hazards during project construction. The land to be graded or cleared is not contiguous and would be spread out over about 184 different work areas, not including access roads that would require minor grading. Construction-related activities would not result in large areas of ground disturbance within one contiguous area; however, rain and wind can detach soil particles in areas of exposed soil and transport them off site.

Soil erosion would be minimized through the implementation of Best Management Practices (BMP) as directed in the site-specific Stormwater Pollution Prevention Plan, which would be prepared for the proposed project prior to initiation of construction, as required by APM HYD-01.

Erosion and loss of topsoil during project construction would be less than significant because of the limited areas that would be graded and/or disturbed, and the use of standard BMPs to minimize erosion and stormwater runoff. Impacts would be less than significant.

Operation and Maintenance
Operation of and maintenance activities for the new double-circuit power line would be similar in scope to existing operation and maintenance activities. Impacts from erosion during maintenance activities would be similar to the existing conditions and would be less than significant.

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
Destabilization of natural or constructed slopes within the project corridor could occur as a result of construction activities. Grading operations associated with providing access to pole locations, pull sites, staging areas, and other work zones could alter existing slope profiles, making them unstable as a result of over-excavating slope material, steepening slopes, or increasing loads. Up to 46 acres of noncontiguous land would be graded and/or cleared of vegetation to reduce vegetative fuel and minimize fire hazards. Areas around Corralitos Creek and Pinto Lake have high potential for liquefaction and associated lateral spreading. These

areas have saturated loose sands susceptible to slope failure. Impacts from landslides that could occur during construction could compromise the safety of people and the power line structures. Mitigation Measure Geology-2 would be implemented to require minimization of slope instability during construction and would reduce potential impacts to a less-than-significant level.

> **Mitigation Measure Geology-2:** During pole installation activities on hilly terrain, construction slopes and existing natural slopes impacted by construction operations shall be evaluated for stability. In developing grading plans and construction procedures for re-establishing and widening access roads and replacing power poles, slope stability shall be analyzed. Construction slopes and grading plans shall be designed to limit the potential for slope instability and erosion during construction. Construction activities likely to result in slope instability shall be suspended, as necessary, during and immediately following periods of heavy precipitation when unstable slopes are more susceptible to failure unless adequate best management practices can be implemented, as detailed in the SWPPP.

The potential for subsidence in the project corridor is low; no impacts from subsidence are anticipated to occur. Soil collapse risk in the project corridor is anticipated to be very low. Standard engineering procedures to be followed during project construction would minimize effects from collapsible soils, if encountered.

Operation and Maintenance
Appropriate engineering standards would be applied to ensure the integrity of the various project components over the life of the proposed project. PG&E would implement Mitigation Measure Geology-1, which requires preparation of a geotechnical report and implementation of the included recommendations and findings by PG&E in the final design of the proposed project. Adherence to these standards and measures would reduce impacts from the presence of unstable geologic units to less than significant levels.

Maintenance activities for the new power line would be similar in scope to existing operation and maintenance. Impacts from unstable soils during maintenance activities would be similar to the existing conditions and 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?

Construction
Impacts from expansive soils during project construction would be less than significant because expansive soils would not affect construction methods or affect life or property.

Operations and Maintenance
Expansive soils have been mapped in a large portion of the eastern part of the project corridor, but the potential for encountering expansive soils along the western portion of the project

corridor, including the area of Rob Roy Substation, is generally low. Expansive soils shrink and swell and can damage foundations if moisture collects beneath structures. Only TSPs would be installed in the eastern part of the corridor (no wood poles). Expansive soils would not be expected to have a significant adverse impact because TSPs would be installed to depths of 15 to 33 feet and would be anchored to concrete foundations, which would prevent shifting as a result of soil expansion. Standard construction practices would be used to mitigate hazardous soil conditions, if encountered (*e.g.*, compact soil at pole and tower sites or wet sandy soils during hole augering).

Collapsible soils are not anticipated to be present in the project corridor; however, the procedures outlined to address expansive soils would also apply to minimize effects from collapsible soils, if encountered. Mitigation Measure Geology-1 requires PG&E implement the recommendations and findings in the geotechnical report in final project design to minimize the effects of expansive soils. Impacts would be less than significant.

Maintenance activities for the new double-circuit power line would be similar in scope to existing operation and maintenance activities. Impacts from expansive soils during maintenance activities would be similar to the existing conditions and 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 proposed project. No impacts would occur.

3.7 GREENHOUSE GAS EMISSIONS

3.7.1 Environmental Setting

Overview

Greenhouse gases (GHGs) are of global concern, unlike criteria air pollutants or toxic air contaminants, which are of regional and/or local concern. Scientific research indicates that observed global climate change is most likely a result of increased GHG emissions associated with human activities (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. GHGs contribute to climate change by allowing ultraviolet radiation to enter the atmosphere and warm the Earth's surface and by preventing some infrared radiation emitted by the Earth from escaping back into space.

The principal GHGs contributing to global warming are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. The largest anthropogenic source of GHGs is fossil fuel combustion, which results primarily in CO_2 emissions. Among the potential implications of global warming are rising sea levels and adverse impacts to water supply, water quality, agriculture, forestry, and habitats. Global warming may also increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial, utility, residential, commercial, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks or reservoirs include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively. These are two of the most common processes of CO_2 sequestration that reduce the amount of CO_2 in the atmosphere.

Regulations

International Actions

The IPCC was created in 1988 (IPCC 2007) by the World Meteorological Organization and the United Nations Environment Program as an effort by the United Nations to provide the governments of the world with a clear scientific view of what is happening to the world's climate. IPCC reviews and assesses the most recent scientific, technical, and socioeconomic information produced worldwide that is relevant to the understanding of climate change.

In 1992, several countries joined the United Nations Framework Convention on Climate Change (UNFCCC), an international treaty, to cooperatively consider what they could do to limit average global temperature increases and the resulting climate change (UNFCCC 2012). By

1995, several countries realized emission reduction provisions in the UNFCCC were inadequate. They launched negotiations to strengthen the global response to climate change and adopted the Kyoto Protocol in Kyoto, Japan, on December 11, 1997. The Kyoto Protocol is an international agreement. The major feature of the Kyoto Protocol is setting binding targets for 37 industrialized countries and the European community for reducing GHG emissions. The major distinction between the Kyoto Protocol and the UNFCCC is that, although the UNFCCC encourages industrialized countries to stabilize GHG emissions, the Kyoto Protocol commits them to do so (UNFCCC 2012). The United States, however, did not sign the Kyoto Protocol.

Federal Actions

On July 11, 2008, the EPA published the "Advanced Notice of Proposed Rulemaking," which is one of the steps the EPA has taken in response to the U.S. Supreme Court's decision in *Massachusetts v. EPA* (EPA 2008). The Court found that the Clean Air Act (CAA) authorizes the EPA to regulate tailpipe GHG emissions if the EPA determines they cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare (EPA 2012).

The EPA established the "Final Rule on Mandatory Reporting of Greenhouse Gases" in 2009, which requires reporting of GHG emissions from large sources and suppliers in the United States. The rule is referred to as 40 Code of Federal Regulations Part 98 (Part 98). Part 98 is intended to collect accurate and timely emissions data to inform future policy decisions. Facilities that emit 25,000 metric tons CO_2 equivalent (CO_2e)[1] or more per year are required to submit annual reports to the EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- ***Endangerment Finding:*** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations.
- ***Cause or Contribute Finding:*** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

[1] Carbon dioxide equivalent (CO_2e) is a metric measure used to compare the emissions from various GHGs based on their global warming potential (GWP). CO_2e is commonly expressed as "million metric tons of carbon dioxide equivalents" ($MMTCO_2e$). The CO_2e for a gas is derived by multiplying the tons of the gas by the associated GWP. GWP is a measure of the total energy that a gas absorbs over a particular period of time (usually 100 years), compared to CO_2.

These findings did not impose any requirements on industry or other entities. This action, however, was a prerequisite for implementing GHG emissions standards for vehicles. The EPA finalized emission standards for light-duty vehicles (2012–16 model years) in May 2010 and heavy-duty vehicles (2014–18 model years) in August 2011 in collaboration with the National Highway Traffic Safety Administration.

State Actions

Executive Order S-3-05, signed in June 2005 by Governor Schwarzenegger, established the state's first GHG emissions targets. The statewide GHG emission reduction targets are:

- By 2010, reduce GHG emissions to 2000 levels
- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80 percent below 1990 levels

This Executive Order requires biannual reports on progress made towards meeting these targets and on the impacts to California from global warming. The state legislature passed and Governor Schwarzenegger signed Assembly Bill 32 (AB 32) in 2006, the Global Warming Solutions Act of 2006, which set the 2020 GHG emissions reduction goal into law. It directed the California Air Resources Board (CARB) to begin developing discrete early actions to reduce GHG emissions while also preparing a scoping plan to identify how best to reach the 2020 limit. The "Climate Change Scoping Plan" (Scoping Plan) prepared by CARB was originally approved in 2008. The Functional Equivalent Document for the Scoping Plan was amended in 2011. The Scoping Plan was re-approved by CARB on August 24, 2011. The Scoping Plan provides the outline for actions to reduce California's GHG emissions (CARB 2011a).

Senate Bill 97 (SB 97) was passed by the state legislature on August 21, 2007, and was approved by the Governor on August 24, 2007. Senate Bill 97 (SB 97) acknowledges climate change is a prominent environmental issue that requires analysis under the California Environmental Quality Act (CEQA). The California Natural Resources Agency adopted amendments to the CEQA Guidelines to address the analysis and mitigation of GHG emissions. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010.

Senate Bill 375 (SB 375), Sustainable Communities and Climate Protection Act of 2008, was approved by the Governor on September 30, 2008. Senate Bill 375 requires CARB to develop regional GHG emission reduction targets for passenger vehicles. Each of California's Metropolitan Planning Organizations then prepares a Sustainable Communities Strategy to demonstrate how the region will meet its GHG emission reduction target through integrated land use, housing, and transportation planning. If regions develop integrated land use, housing, and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain review requirements of CEQA.

Reporting of GHG emissions by major sources is required by AB 32. In 2007, CARB established the "Regulation for the Mandatory Reporting of Greenhouse Gas Emissions." Revisions to the existing CARB mandatory GHG reporting regulations were considered at the December 16, 2010, CARB hearing. The revised regulation was approved by the California Office of

Administrative Law and became effective on January 1, 2012. The revised regulation affects industrial facilities; suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and CO_2; operators of petroleum and natural gas systems; and electricity retail providers and marketers. Facilities that emit 25,000 metric tons CO_2e or more per year are required to submit annual reports to CARB.

Local Actions

The Monterey Bay Unified Air Pollution Control District (MBUAPCD) has jurisdiction over air quality programs in Santa Cruz County, California. MBUAPCD established a GHG emission threshold for stationary sources of 100,000 tons per year of CO_2e GHG emissions (MBUAPCD 2010), but has not established any thresholds for non-stationary sources such as those associated with construction activities.

California Public Utilities Commission Actions

The California Public Utilities Commission (CPUC) has been engaged in proactive climate strategy work since 2004. Current climate strategy work is contained in the Commission's rulemaking on GHG policies, which is divided into two phases: 1) implementation of a GHG emissions performance standard and 2) consideration of GHG policies under AB 32 – joint proceeding with the California Energy Commission (CEC) (CPUC 2012).

On January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard in an effort to help mitigate climate change. On October 16, 2008, the CPUC and the CEC published the "Final Opinion on Greenhouse Gas Regulatory Strategies" and have undertaken this collaborative proceeding to develop and provide recommendations to CARB on measures and strategies for reducing GHG emissions in the electricity and natural gas sectors (CPUC 2012).

GHG Emissions

California GHG Emissions

CARB developed the statewide GHG emissions inventory for 2000 through 2009 (CARB 2011b) in 2011. Table 3.7-1 presents the statewide GHG emissions and sinks estimated by CARB for 2000 through 2009. The global warming potential (GWP) is used from an inventory perspective. The GWP provides a comparison of the warming influence of different GHGs relative to CO_2 and allows for the calculation of a single consistent GHG emission unit: carbon dioxide equivalent or CO_2e (IPCC 2007). Total California GHG emissions were 457 million metric tons of CO_2e ($MMTCO_2e$) in 2009. Net emissions were 453 $MMTCO_2e$, reflecting the influence of sinks (net CO_2 flux from forestry). The transportation sector accounted for approximately 38 percent of total GHG emissions, while the industrial sector accounted for approximately 20 percent. Emissions from electricity generation were about 23 percent with almost equal contributions from in-state and imported electricity (CARB 2011b).

Table 3.7-1: California Greenhouse Gas Emissions and Sinks 2000–09

Economic Sector	Greenhouse Gas Emissions ($MMTCO_2e$)										Percent of Total in 2009	Percent Change in Emissions	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009		2000–09	2008–09
Agriculture	28.9	29.1	32.3	30.7	32.3	32.6	33.7	32.9	33.7	32.1	7.0	11.1	-4.6
Commercial	12.8	12.4	14.2	13.0	13.3	13.0	13.3	13.3	13.4	14.3	3.1	11.7	6.9
Electricity Generation (import)	46.2	59.4	59.4	64.9	66.4	63.2	55.0	60.1	66.2	48.4	10.6	4.7	-26.9
Electricity Generation (in-state)	61.0	64.8	51.5	49.9	51.0	47.0	51.8	56.0	56.1	56.2	12.3	-7.8	0.2
Forestry	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.04	-0.7	-0.1
Industrial	103.8	100.5	101.4	98.7	100.6	100.2	99.9	97.3	94.9	89.3	19.5	-14.0	-5.9
Residential	30.1	28.6	28.8	28.3	29.3	28.1	28.4	28.6	28.1	28.6	6.3	-5.0	1.7
Transportation	171.7	174.8	181.3	179.4	183.2	186.1	186.6	187.1	178.0	172.9	37.9	0.7	-2.8
Unspecified	8.9	9.6	10.3	11.0	11.7	12.3	12.9	13.3	14.2	14.7	3.2	65.2	3.8
Total Gross Emissions	463.7	479.2	479.2	476.1	488.2	482.5	481.9	488.8	484.7	456.8	—	-1.5	-5.8
Forestry Net Emissions	-4.5	-4.3	-4.2	-4.2	-4.2	-4.0	-3.9	-3.9	-3.8	-3.8	—	—	—
Total Net Emissions	459.2	474.9	475.0	471.9	484.0	478.5	478.0	484.9	480.9	453.0	—	-1.3	-5.8

Source: CARB 2011b

Santa Cruz County GHG Emissions

The "2004 Inventory of Greenhouse Gas Emissions from Santa Cruz County Mobile Sources" was developed in 2008 (MBUAPCD 2008). This inventory provides a summary of GHG emissions from all Santa Cruz County mobile sources and is presented in Table 3.7-2.

The mobile source inventory of GHG emissions in Santa Cruz County is dominated by emissions from on-road motor vehicles, accounting for nearly 95 percent of total mobile emissions, as shown in Table 3.7-2.

Table 3.7-2: 2004 GHG Emissions from Santa Cruz County Mobile Sources

Mobile Category	Emissions	
	Kilotons/year CO_2e	Percent Mobile GHGs
On-road Motor Vehicles	1,124.9	94.7
Off-road Mobile Sources	62.4	5.3
Total	1,187.3	100

Source: MBUAPCD 2008

3.7.2 Environmental Impacts and Assessment

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

The MBUAPCD has established GHG significance thresholds for stationary sources, but has not adopted thresholds for non-stationary sources (e.g., transmission line construction emissions). CARB also has not established quantitative GHG significance thresholds for construction emissions. CARB has determined construction emissions would be less than significant if BMPs are implemented to minimize dust and other typical construction emissions (CARB 2008).

The CPUC, as lead agency for the proposed project, has elected to use the annual emissions thresholds for stationary sources as a quantitative GHG significance threshold for construction emissions. The MBUAPCD established a GHG emissions threshold for stationary sources of 100,000 tons per year of CO_2e GHG emissions (MBUAPCD 2010).

The emission estimation was performed using the California Emissions Estimator Model (CalEEMod) 2011 model and project construction activity data (PG&E 2013). Helicopter emissions were calculated using the Federal Aviation Administration's Emissions and Dispersion Modeling System (PG&E 2012). Project-specific construction activity data were used in the emissions calculations. Table 3.7-3 shows the predicted annual GHG emissions from construction phases[2] (PG&E 2012 and 2013). Detailed GHG emissions calculations are found in Appendix B.

Estimated annual GHG emissions from the proposed project would be up to 1,741.64 metric tons CO_2e per year during construction. These emissions are well below the significance threshold of 100,000 metric tons CO_2e per year. Emissions of GHGs during construction of the proposed project would be less than significant.

Table 3.7-3: Annual GHG Emissions—Construction

Sources	CO_2 (metric tons/year)	CH_4 (metric tons/year)	N_2O (metric tons/year)	CH_4 (metric tons CO_2e/year)	N_2O (metric tons CO_2e/year)	Total CO_2e (metric tons/year)
Off- and On-Road Vehicles	1,736.79	0.16	<0.00088	3.4	<0.27	**1,740.19–1,740.49**
Helicopters	120.21	.0035	0.0035	0.074	1.1	**1.18**
Total	**1,857.00**	**0.16**	**0.0035–0.0044**	**3.47**	**1.1–1.37**	**1,741.37–1,741.64**
CARB and EPA Threshold	**—**	**—**	**—**	**—**	**—**	**25,000**
MBUAPCD Threshold (tons/year)	**—**	**—**	**—**	**—**	**—**	**100,000**
Exceeds Threshold?	**—**	**—**	**—**	**—**	**—**	**No**

Source: PG&E 2012 and 2013

[2] A fifteen-month construction duration was assumed for the analysis presented here, as well as a 10 percent additional emissions factor to account for any increased activity (e.g., addition of poles). Calculation results are shown in Table 3.7-3.

Operations and Maintenance

Operation and maintenance of the proposed project would not change the trip frequency of the vehicles or equipment currently used by PG&E to operate the existing power line or substations. There would be no increase in GHG emissions from vehicles or equipment for the proposed project's operation and maintenance. Fugitive emissions of SF_6 could result from operation of the new equipment installed at Rob Roy Substation. The new equipment would result in an estimated increase of 0.001 metric tons of SF_6 emissions per year, which would be 13.44 metric tons CO_2e per year (PG&E 2012). The GHG emissions increase during proposed project operations would be below MBUAPCD's threshold of 100,000 metric tons CO_2e per year for stationary sources.

PG&E would also implement the following company-wide actions to further reduce GHG emissions from operation and maintenance of the proposed project (PG&E 2012):

- PG&E is an active member of the SF_6 Emission Reduction partnership for Electrical Power Systems, which is a voluntary program between the EPA and electric power companies. This program focuses on reducing emissions of SF_6 from transmission and distribution operations. Since 1998, PG&E has reduced the SF_6 leak rate by 89 percent and absolute SF_6 emissions by 83 percent.
- CARB has started adopting AB 32 Early Action Measures to reduce GHG emissions. PG&E will implement the appropriate Early Action Measures as they become effective.

Operational emissions of 13.44 metric tons CO_2e per year would be below the MBUAPCD significance threshold for stationary sources. Emissions of GHGs during operation and maintenance of the proposed project would, therefore, be less than significant.

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

CARB and the EPA have established plans and regulations for the purpose of reducing emissions of GHGs. CARB established regulations for mandatory reporting of GHG emissions and reducing SF_6 emissions from gas-insulated switchgear. These regulations require facilities emitting 25,000 metric tons CO_2e or more per year to submit annual reports to CARB. They also require reductions in emissions from SF_6-insulated switchgear by 2020, so that the maximum leak rate is no more than 1 percent. The EPA established the Mandatory Reporting of Greenhouse Gases Rule. This rule requires certain facilities that emit 25,000 or more metric tons CO_2e per year to submit annual reports to the EPA.

The GHG emissions for project operation and construction phases would be below the reporting requirements of CARB and the EPA under their respective rules and regulations. The proposed project would also comply with SF_6 emissions requirements regulated by CARB. Annual SF_6 emissions from switchgear would be less than 1 percent. The proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs.

3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 Environmental Setting

Existing Hazardous Sites

Hazardous materials are chemical and non-chemical substances that can pose a threat to the environment or human health if misused or released. Hazardous materials occur in various forms and can cause death, serious injury, long-lasting health effects and damage to buildings, homes, and other property. Hazardous materials are used in industry, agriculture, medicine, research, and consumer goods. Many products containing hazardous chemicals are routinely used and stored in homes. Hazardous materials can include explosives, flammable and combustible substances, poisons, radioactive materials, pesticides, and petroleum products. These substances are most often released as a result of motor vehicle or equipment accidents or because of chemical accidents during industrial use. These substances have the potential to leach into soils, surface water, and groundwater during spills if they are not properly contained.

Information for this section was obtained by conducting a thorough review of state and federal databases. These databases identify hazardous materials sites within 0.25 miles of the proposed project components that are registered on one or more environmental oversight agency database lists. The following databases were reviewed:

- U.S. Environmental Protection Agency (EPA) National Priorities List (NPL)
- California Department of Toxic Substances Control (DTSC) sites (EnviroStor database)
- Leaking Underground Storage Tank, Department of Defense, and Site Cleanup Program sites (GeoTracker database)
- Toxic Alert for California Superfund sites

NPL is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories (commonly known as Superfund). The only NPL listing in Santa Cruz County is the Watkins-Johnson Company in the City of Scotts Valley, approximately 10 miles northwest of Rob Roy Substation (EPA 2012).

The California EPA (Cal-EPA) maintains an online geographic information systems (GIS) service called EnviroStor, which provides online access to environmental data for sites overseen by Cal-EPA (DTSC). There are three open DTSC cases within 0.25 miles of the project corridor (DTSC 2013). Details for the sites are listed in Table 3.8-1. The locations of the sites are shown on Figure 3.8-1.

California's State Water Resources Control Board (SWRCB) offers an online GIS service, called GeoTracker, which provides online access to environmental data for sites overseen by Regional Water Quality Control Boards (RWQCB). GeoTracker is the interface for the Geographic

Table 3.8-1: Open RWQCB and DTSC Cases within 0.25 Miles of the Project Corridor

Site Name and Address	Approximate Distance and Direction from Project Corridor	Affected Medium	Groundwater Flow Direction	Chemicals of Concern
RWQCB Case				
Former Paradise Nursery, 1311 Hames Road, Corralitos	0.10 miles northeast of existing pole E-56	Ground-water and soil	Variable: northeast, east, and southeast	Gasoline, diesel, and benzene
DTSC Cases				
PG&E MGP #2, Corner of Front Street and Walker Street, Watsonville	0.10 miles northeast of Watsonville contractor storage yard	Ground-water and soil	Southeast to southwest	Diesel, motor oil, arsenic, and polynuclear aromatic hydrocarbons (PAH)
PG&E Service Center, 11 Walker Street, Watsonville	Adjacent to Watsonville contractor storage yard	Ground-water and soil	Southeast to southwest	Diesel, motor oil, arsenic, and PAHs
California Spray & Chemical, 135 Walker Street, Watsonville	0.25 miles north-northwest of Watsonville contractor storage yard	Soil	North	Arsenic and lead

Source: SWRCB 2013, DTSC 2013

Environmental Information Management System, which is a data warehouse that tracks regulatory data on underground storage tanks, fuel pipelines, and public drinking water supplies. There is one open RWQCB case within 0.25 miles of the proposed project corridor (SWRCB 2013). Details for the site are listed in Table 3.8-1. The location of the site is shown on Figure 3.8-1.

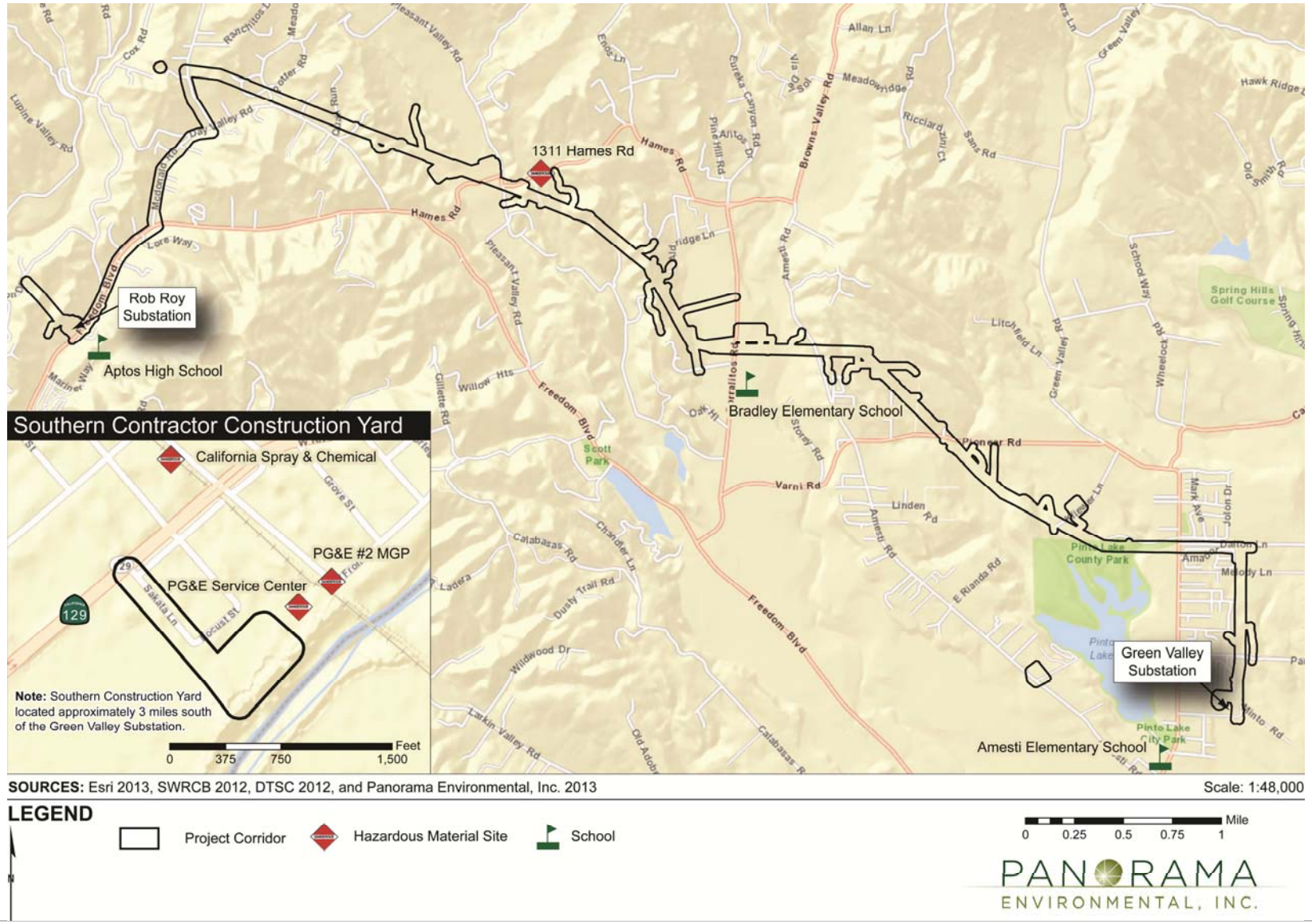
Schools

The closest schools to the project corridor are Aptos High School, located 0.2 miles southeast of Rob Roy Substation, and Bradley Elementary School, located 0.2 miles south of the project corridor. Other schools in the project vicinity include Amesti Elementary School in Watsonville, 0.5 miles southwest of the project corridor, and Aptos Junior High School in Aptos, 0.8 miles west-southwest of Rob Roy Substation.

Airports and Air Strips

The nearest major airport in this region is Mineta San José International Airport, located approximately 25 miles north-northwest of the project corridor. Within the project corridor, the Watsonville Municipal Airport is located approximately 1.5 miles southwest of Green Valley Substation and is the only public use airport in the County. There are no private airstrips within 5 miles of the project corridor. The closest private airstrip is located at Monterey Bay Academy in La Selva Beach, approximately 5.5 miles southwest of Green Valley Substation.

Figure 3.8-1: Hazardous Materials Sites in the Project Corridor



The 291-acre Watsonville Municipal Airport has two runways serving single- and twin-engine aircraft and helicopters, as well as turboprops and turbine-powered business jets. The airport has an additional 53 non-contiguous acres of land for clear-zone protection (Watsonville Municipal Airport 2002).

Santa Cruz County does not have an Airport Land Use Commission; accordingly, no formal Airport Land Use Plan (ALUP) has been prepared for Watsonville Municipal Airport. The airport has a Master Plan, however, which includes an Airspace Protection Plan (Watsonville Municipal Airport 2002). Portions of the project corridor in the vicinity of Green Valley Substation are located within the horizontal boundaries of the airspace protection surfaces of the Airspace Protection Plan. Airspace protection surfaces are invisible surfaces above the ground designed to protect arriving and departing aircraft. Section 3.16: Transportation and Traffic provides additional information regarding airports and air traffic in the project corridor.

Emergency/Evacuation Plans

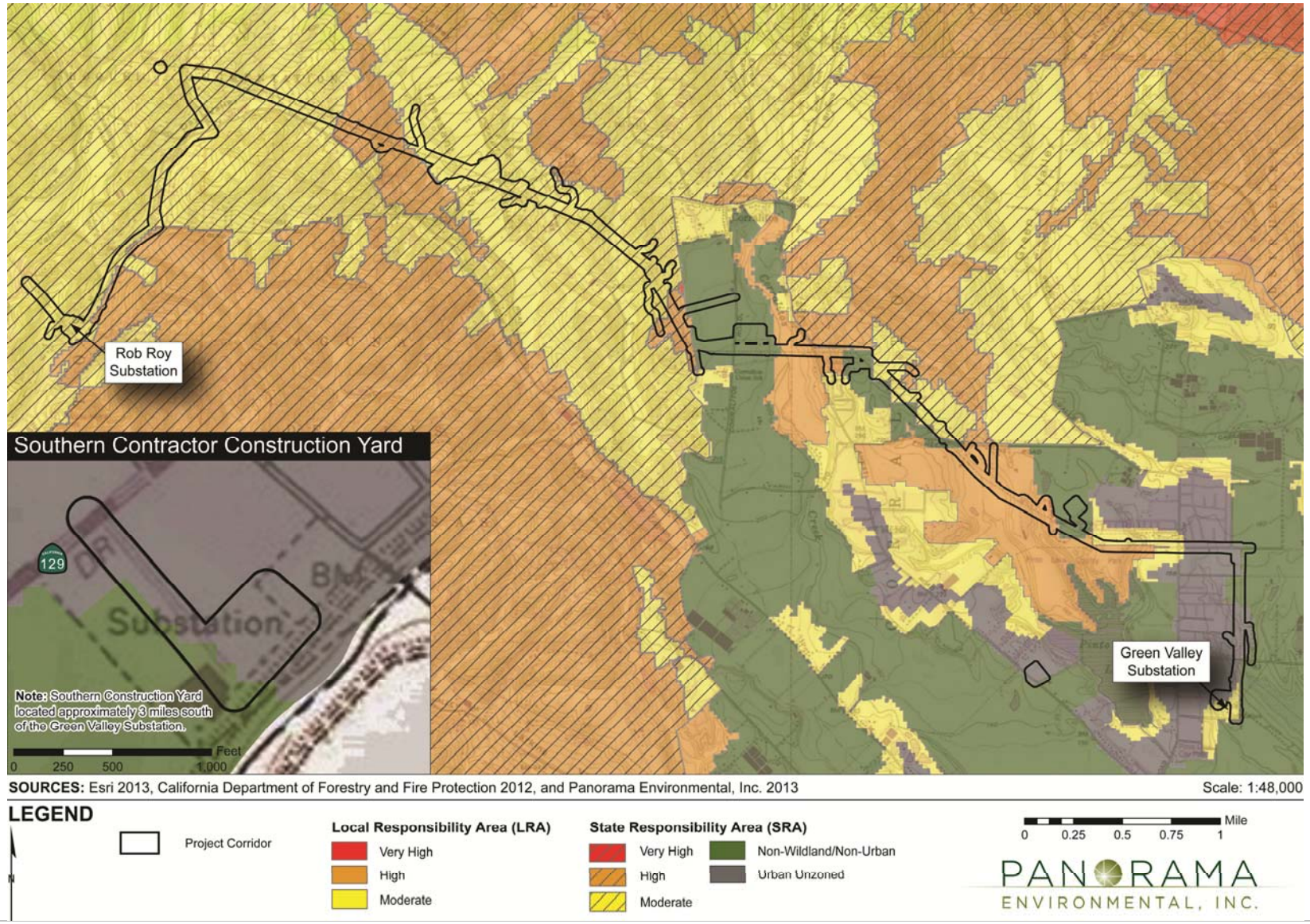
The Santa Cruz County Office of Emergency Services (OES) is responsible for emergency planning and preparation on a countywide basis. OES assesses major emergency threats to the Santa Cruz Operational Area, including wildland fires, floods, earthquakes, tsunami, dam failure, and civil disturbances. The OES is responsible for making all necessary notifications to County departments and personnel, the Santa Cruz Operational Area member jurisdictions, and the Coastal Region of the California Governor's Office of Emergency Services. OES disseminates warnings, emergency public information, and instructions to the citizens of the County, and also conducts evacuations and/or rescue operations. Emergency medical, fire protection, and hazardous materials services for the project corridor are provided by fire protection districts, which are further discussed in Section 3.14: Public Services.

Two major highways traverse the County: State Route 1 (SR-1), which runs north-south along the coastline, and State Route 17 (SR-17), which runs northeast through the Santa Cruz Mountains to the Santa Clara Valley. Both of these routes could be used in the event of an emergency evacuation. SR-1 is approximately 2.8 miles southwest of Green Valley Substation; however, a portion of SR-1 south of Aptos is located within a potential tsunami inundation area (OES 2005). SR-17 is located 8.4 miles west of Rob Roy Substation. Secondary highways SR-152, approximately 1.3 miles southeast of Green Valley Substation, and SR-129, approximately 2.9 miles southeast of Green Valley Substation, also could be used as evacuation routes. The closest interstate highway is U.S. Highway 101 (US 101), approximately 11 miles southeast of the project corridor.

Fire Hazards

Wildfires are a public safety concern in Santa Cruz County. Portions of the project corridor are located within the urban-wildland interface fire area, the area where houses intermingle with undeveloped wildland vegetation. Figure 3.8-2 shows urban areas and adjacent wildland areas (areas with a fire hazard rating).

Figure 3.8-2: Fire Hazard Ratings in the Project Corridor



The California Department of Forestry and Fire Protection (CAL FIRE) protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. CAL FIRE assesses areas within the state for fire hazard severity by examining the following:

- The history and intensity of wildfires in the area
- Size and type of vegetation in the area
- Proximity to fire extinguishing resources

CAL FIRE identifies five types of fire threat based on the following levels of risk severity:

- Extreme
- Very High
- High
- Moderate
- Little or No Threat

CAL FIRE rates the majority of the project corridor as moderate and high for fire hazard severity (CAL FIRE 2007a, CAL FIRE 2007b). Some of the eastern portions of the project corridor, closer to Watsonville, are zoned as urban un-zoned or non-wildland/non-urban. Green Valley Substation and the portion of the Northern Alignment closest to Watsonville are located in a CAL FIRE Local Responsibility Area (LRA). LRAs are areas where local government agencies have responsibility for wildland fire protection. Rob Roy Substation and the remaining portion of the Northern Alignment, as well as the Cox-Freedom Segment, are located in a CAL FIRE State Responsibility Area (SRA). SRAs are areas where state government agencies have responsibility for wildland fire protection. Fire hazard severity ratings and LRA and SRA delineations are shown on Figure 3.8-2.

CAL FIRE also produces fuel rank maps that indicate moderate, high, and very high fuel rankings (CAL FIRE & RCD 2010). Fuel rankings are based on inputs such as fuel, slope, brush density, and tree density. Rankings are assigned based on expected fire behavior for unique combinations of topography and vegetative fuels under a given severe weather condition (wind speed, humidity, and temperature) for an assigned fuel model and slope. The rankings are used to identify and prioritize pre-fire projects that reduce the potential for large catastrophic fire. Most of the project corridor is located on land with a moderate fuel rank hazard, with some localized portions of the project corridor assigned as having both high and very high fuel rank hazards (CAL FIRE & RCD 2010).

3.8.2 Applicant Proposed Measures

PG&E proposed to implement measures during implementation of the proposed project that would reduce environmental impacts. The following relevant APMs are considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include these APMs as part of the project, and PG&E would

have to adhere to the APMs as well as any identified mitigation measures. The APMs that are applicable to the hazards and hazardous materials analysis are shown in Table 3.8-2. One APM was superseded with a mitigation measure, as noted in the impact analysis.

Table 3.8-2: Applicant Proposed Measures for Hazards and Hazardous Materials Impacts

APM Number	Requirements
APM HAZ-02. Spill Prevention Control and Countermeasure Plan Update.	PG&E will update the existing SPCC Plan for Rob Roy Substation and ensure compliance with applicable standards by incorporating the design, control, training, containment, and response requirements for the increased amounts of hydrocarbon and oil storage that will be located at the modified substation, so that hazardous materials will not encounter the soil.
APM HAZ-03. Smoking and Fire Rules.	Smoking will not be permitted during fire season, except in a barren area that is cleared to mineral soil at least 10 feet in diameter or within vehicles or 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 grass and woodlands.
APM HAZ-04. Carry Emergency Fire Suppression Equipment.	PG&E construction crew trucks and equipment will have at a minimum a standard round point shovel and a fire extinguisher. If construction activities likely to cause sparks (e.g., welding, grinding, or grading in rocky terrain) are conducted, emergency fire tool boxes will be readily available to crews. The tool boxes will contain firefighting items such as shovels, axes, and water.

3.8.3 Environmental Impacts and Assessment

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 miles of an existing or proposed school?	☐	☐	☒	☐
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?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 corridor?	☐	☐	☐	☒
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 corridor?	☐	☐	☐	☒
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?

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?

Construction

The transport, use, and disposal of hazardous materials during project construction would be minimal. Hazardous materials typically used for construction are shown in Table 3.8-3. These materials are considered hazardous because they are flammable and/or contain toxic compounds, such as volatile organic compounds and heavy metals. Wastes 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.

Any release of hazardous materials would most likely result from accidental spills or other unauthorized releases during vegetation clearing, grading, and access road construction; pole removal and installation; or conductor pulling, splicing, and tensioning. An inadvertent release could also occur from the use of hazardous materials during construction within temporary storage sites, while transporting hazardous materials to and from work areas, or during

Table 3.8-3: Hazardous Materials Typically Used for Construction	
2-Cycle Oil	Lubricating Grease
ABC Dry Chemical Fire Extinguisher	Mastic Coating
Acetylene Gas	Methyl Alcohol
Air Tool Oil	Oxygen
Antifreeze	Paint
Automatic Transmission Fluid	Paint Thinner
Battery Acid	Petroleum Products
Canned Spray Paint	Puncture Seal Tire Inflator
Connector Grease	Safety Fuses
Contact Cleaner 2000	Safety Solvent
Diesel Fuel and Gasoline	Starter Fluid
Gas Treatment	Wagner Brake Fluid
Jet A Fuel	WD-40
Insulating Oil	

refueling and servicing of equipment. Soils could become contaminated, water quality could be affected, and adverse impacts to human health and safety could result if an inadvertent release of hazardous materials occurs during project construction. The quantities of hazardous materials to be used during construction typically would be small, with the exception of the fuel truck required for helicopter refueling.

The proposed project includes APM HAZ-02, which requires Pacific Gas and Electric Company (PG&E) to update the Spill Prevention, Countermeasure and Control (SPCC) Plan for Rob Roy Substation to reflect storage of increased quantities of hazardous materials at the facility. Impacts associated with hazardous materials would be less than significant with mitigation.

Implementation of BMPs outlined in the SWPPP would ensure any accidental releases of hazardous materials would be properly controlled and quickly cleaned up. A potentially significant impact could still occur, however, if workers or the public were to come into contact with spilled hazardous materials. Mitigation Measures Hazards-1, Hazards-2, and Hazards-3 would reduce potentially significant hazardous materials impacts to a less-than-significant level.

> **Mitigation Measure Hazards-1 (Supersedes APM HAZ-01):** An Environmental Training and Monitoring Program (ETMP) shall be established to communicate to all field personnel any environmental concerns and appropriate work practices, including spill prevention and response measures and Best Management Practices (BMP). The

training program shall emphasize site-specific physical conditions to improve hazard prevention (*e.g.*, identification of flow paths to nearest water bodies) and shall include a review of all site-specific plans.

A PG&E-designated representative shall be identified 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 and to provide the necessary information for emergency response. A copy of the ETMP shall be submitted to the California Public Utilities Commission (CPUC) at least 30 days prior to construction. Training attendance sheet(s) shall be submitted to the CPUC on a monthly basis.

Mitigation Measure Hazards-2: PG&E shall prepare and incorporate methods and techniques to minimize the exposure of the public to potentially hazardous materials during all phases of project construction through operation into a Hazardous Substance Control and Emergency Response Plan (HSCERP) as part of the project-specific SWPPP and submit the SWPPP to CPUC for recordkeeping at least 30 days prior to project construction. The HSCERP measures shall require implementation of appropriate control methods and approved containment and spill control practices for construction and on-site material storage. All hazardous materials and hazardous wastes shall be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. With the exception of wood poles, the plan shall specify that all hazardous materials shall be collected in project-specific containers and transported to a PG&E service center designated as a PG&E consolidation site. Wood poles shall be transported off site once removed from the ground and temporarily stored in project-specific containers at a PG&E facility. As containers are filled, poles shall be transported to an appropriate licensed Class I landfill or the composite-lined portion of a solid waste landfill. The HSCERP measures shall also include, but not be limited to, the following:

- Proper disposal of potentially contaminated soils
- Vehicles and equipment parking near sensitive resource areas during construction
- Emergency response and reporting procedures to address hazardous material releases

The measures shall specify that emergency spill supplies and equipment shall be available to respond in a timely manner if an incident should occur. Response materials such as oil-absorbent material, tarps, and storage drums shall be used as needed to contain and control any minor releases.

Mitigation Measure Hazards-3: PG&E shall provide a Health and Safety Plan (HSP) to ensure that potential safety hazards are minimized. The HSP shall include elements that establish worker training and emergency response procedures relevant to project activities. The plan shall be submitted to CPUC at least 30 days prior to construction for CPUC recordkeeping.

An inadvertent release of hazardous materials could also occur from improper disposal of the wood poles. Wood poles, such as those within the existing project alignment, are treated with a wood preservative that contains hazardous compounds such as polycyclic aromatic hydrocarbons. Wood poles would be removed during project construction. Although the poles would be considered hazardous waste, California Assembly Bill 1353 (Stats. 2004, ch. 597) allows treated wood waste to be disposed of either in a hazardous waste landfill or in a composite-lined portion of a solid waste landfill approved to accept it by the appropriate RWQCB. As noted in Section 3.17: Utilities and Service Systems, both municipal landfills in the project corridor are approved to accept treated wood waste.

California Health and Safety Code section 25503.5 lists threshold quantities of hazardous materials such that if quantities in excess of these are stored within project work areas, PG&E would be required to develop a Hazardous Materials Business Plan for the project.

Operation and Maintenance

Operation and maintenance activities for the rebuilt power line would be similar in scope to existing operation and maintenance activities. The current protocols for use, transport, and disposal of hazardous materials during project operation and maintenance would continue to be implemented. Herbicides may be applied around TSPs and wood poles to control vegetation in these areas. Herbicides may also be applied in restoration areas for treatment of non-native and invasive weeds. Herbicides would be applied in the same manner that they are currently used. Herbicides would be applied and stored according to applicable regulations, and all herbicide applicators would carry the appropriate license from the California Department of Pesticide Regulation. Measures for herbicide use would be included in the project Stormwater Pollution Prevention Plan (APM HYD-01). Measures for herbicide handling and disposal would be included in the project HSCERP, required by Mitigation Measure Hazards-2. Impacts associated with the transport, use, and disposal of hazardous materials during operations and maintenance would be less than significant.

C) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school?

Construction

Two schools are located within 0.25 miles of the project corridor. Project construction would require the use of motorized heavy equipment, including vehicles that use gasoline, diesel, antifreeze, and lubricants. Project construction would not involve the use of large quantities of hazardous materials on site, with the exception of the fuel truck that would be required during helicopter use. No helicopter landing zones are proposed to be located within 0.25 miles of a

school; therefore, no refueling would occur within 0.25 miles of a school. Any hazardous materials spills would be cleaned up immediately in accordance with hazardous substance control measures, health and safety measures, BMPs, and procedures outlined in the SWPPP. Construction would be performed over a relatively short period of time (up to 15 to 18 months) and a relatively small quantity of hazardous materials would be used. Most project components would be located more than 0.25 miles from a school.

The proposed project includes APM HAZ-02, which requires the Rob Roy Substation SPCC Plan to be updated to account for the increased volume of hydrocarbons and oil that would be stored at the substation as a result of the addition of new substation components. Rob Roy Substation is located approximately 0.2 miles from Aptos High School. Impacts would be less than significant.

Operation and Maintenance

Operation and maintenance activities for the rebuilt power line would be similar in scope to existing operation and maintenance activities. The current protocols for addressing the release of hazardous materials during project operation and maintenance would continue to be implemented, and the Rob Roy Substation SPCC Plan, to be updated in accordance with APM HAZ-02, would be implemented to ensure any foreseeable upsets or accidents associated with hazardous substances are appropriately addressed. However, procedures outlined in the SPCC would remain the same as those followed prior to project construction. Impacts would be less than significant.

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

The proposed project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5. There is one active leaking underground storage tank site under RWQCB oversight and three active cleanup sites under DTSC oversight located within 0.25 miles of the project corridor. Each of the sites has affected local soil and/or groundwater quality as a result of a release of petroleum hydrocarbon constituents. Contaminated soil would be encountered within a limited area around the point of release at the affected site. The only site with potentially affected soil that is within a proposed project work area is the PG&E Service Center (current location of the Watsonville Substation), which is directly adjacent to the contractor storage yard on Sakata Lane. This yard would not require any grading or digging for site preparation; therefore, no subsurface soil would be exposed at this site. Contaminated groundwater has a larger area of effect because, unlike soil, it moves through the subsurface and can be found at some distance away from the point of release depending on subsurface geology, hydrologic gradient, and other factors. Excavations for project structures (crossing structures, TSP foundations, and wood pole holes) would range in depth from 8 to 33 feet deep. Groundwater may be encountered in these excavations. Effects from groundwater contamination at the three groundwater sites are limited in lateral extent and

project activities are unlikely to cause a significant hazard to the public or environment due to work in the area. Impacts would be less than significant.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to existing operation and maintenance activities, and would continue to be performed on above-grade structures. Any maintenance-related excavation activities would generally occur within the existing ROW, in areas previously disturbed during construction or historical maintenance. Impacts would 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 result in a safety hazard for people residing or working in the project corridor?

An ALUP has not been adopted for the Watsonville Municipal Airport, which is located approximately 1.5 miles southwest of Green Valley Substation. The proposed project is located within the boundaries of lands included in the Watsonville Municipal Airport Airspace Protection Plan, although the plan itself is not applicable to the proposed project. Project construction would not result in a safety hazard and would not conflict with provisions of the plan. Structure heights for new project components would range from 35 feet for dead-end take-off structures, to be installed at Rob Roy Substation, to a maximum of 100 feet for some TSPs. No project structures would penetrate the protection surfaces delineated in the plan, which are 150 feet above the ground surface elevation of the airport. No impact would occur.

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 corridor?

There are no private airstrips within 5 miles of the project corridor. No impact would occur.

G) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction
Temporary road or lane closures may be necessary during project construction to ensure safety of the public and workers, but are expected to be brief (i.e., fewer than 5 minutes in duration). All work performed on or adjacent to roadways covered by a County encroachment permit would conform to the provisions of the permit, which include traffic protection, minimization of traffic interference, and conformance with California Department of Transportation standard plans and specifications. Project construction would not impair implementation of or physically interfere with an adopted emergency response or evacuation plan, and would occur over a relatively short period of time (up to 15 to 18 months). The proposed project includes APM PS-01, which would require coordination with emergency service providers at least 24 hours prior to road or lane closures. Impacts would be less than significant. In the event of an emergency requiring evacuation, PG&E personnel would ensure all evacuation routes are open and accessible for public use.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to existing operation and maintenance activities. The rebuilt power line would generally occupy the same footprint as the existing power line within an existing power line ROW. If maintenance activity extends into roadways, the roadways would remain open to emergency vehicles at all times. In addition, in the event of an emergency requiring evacuation, PG&E personnel would ensure all evacuation routes are open and accessible for public use. No impact would occur.

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 majority of the project corridor is located on lands designated by CAL FIRE as having moderate or high fire hazard severity, and portions are located within the urban-wildland interface fire area. Equipment and vehicles used during construction could create sparks and ignite a fire. Other potential fire hazards would include worker behavior such as smoking and disposing of cigarettes or parking vehicles on dry vegetation.

Project construction would generally be restricted to areas that have been cleared of vegetation. Vegetation clearance within all existing and expanded easements would meet all state and CPUC clearance requirements (*i.e.*, CPUC General Order 95). Vehicles and equipment would primarily use existing and roads to access work areas, which would be cleared of brush to minimize fire hazards. New access roads would be cleared of vegetation prior to construction, and vegetation removal may occur along overland access routes, as necessary, for fire prevention purposes. The new TSPs are not flammable and would provide greater durability and strength compared to the existing wood poles they are replacing. The proposed project includes APMs HAZ-03 and HAZ-04 which limits smoking and requires vehicles to carry fire suppression equipment. Impacts would be less than significant.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to those currently existing. The rebuilt power line would generally occupy the same footprint as the existing power line within an existing power line ROW. Current protocols for fire prevention during project operation and maintenance would continue to be implemented. Approximately 30-foot-by-15-foot work spaces around all TSPs and wood poles would be cleared of shrubs and other obstructions for inspection and maintenance purposes, consistent with current maintenance practices. Vehicles used to access project components for maintenance activities would use existing and new access roads, which would reduce the potential for ignition of dry vegetation during vehicle trips. Impacts associated with wildfires would be less than significant.

3.9 HYDROLOGY AND WATER QUALITY

3.9.1 Environmental Setting

Regional Setting

The project corridor is located in the Central Coast Hydrologic Region, within the Pajaro Valley Groundwater Basin (CDWR 2003). The project corridor lies within the jurisdiction of the Central Coast Regional Water Quality Control Board (RWQCB). The Central Coast RWQCB has jurisdiction over a 300-mile-long by 40-mile-wide section of the central coast of California. The Central Coast Region encompasses the entire County and contains 2,360 miles of streams, 25,040 acres of lakes, 3,559 square miles of groundwater basins, and 8,387 acres of wetlands and estuaries. The Central Coast Region receives approximately 12 million acre-feet of precipitation per year, which averages to about 9.9 acre-feet per person per year. Water of adequate quality for many domestic uses in the Central Coast Region is in short supply. Water quality problems most frequently encountered in the Central Coast Region are associated with excessive salinity or hardness of (highly mineralized) local groundwater. The project corridor is located within the Pajaro River Hydrologic Unit of the Central Coast RWQCB.

Surface Water Bodies

Drainages, Creeks, and Streams

The majority of the project corridor is located in the 1,300-square-mile Pajaro watershed, of which 200 square miles are located in Santa Cruz County. Corralitos Creek, Salsipuedes Creek, and the Watsonville Slough System comprise the Pajaro watershed. The northern portion of the project corridor is located in the 25-square-mile Aptos watershed, within which Aptos Creek and Valencia Creek are the principal tributaries.

Surface waters within the project corridor include seeps, drainages, ponds, lakes, streams, and seasonally flooded areas. The primary surface water bodies in the project corridor are Corralitos Creek, Valencia Creek, Pinto Lake, and Corralitos Lagoon. College Lake, a County-protected reservoir, is also located in the project corridor. It fills with water during the winter rainy season and is pumped out in the spring to supply growers with irrigation water.

Surface water features located within 100 feet of the project corridor and Rob Roy Substation are shown on Figures 3.9-1 and 3.9-2 and are listed in Table 3.9-1. Features within the project corridor were reviewed for their potential to be Army Corps of Engineers (ACOE) or California Department of Fish and Wildlife (CDFW) jurisdictional waters, and wetland delineations were conducted for two wetland work areas, the locations of which are shown in Figures 2.4-3 and 2.4-4.

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.

Figure 3.9-1: Surface Water Features in the Project Corridor, Map 1

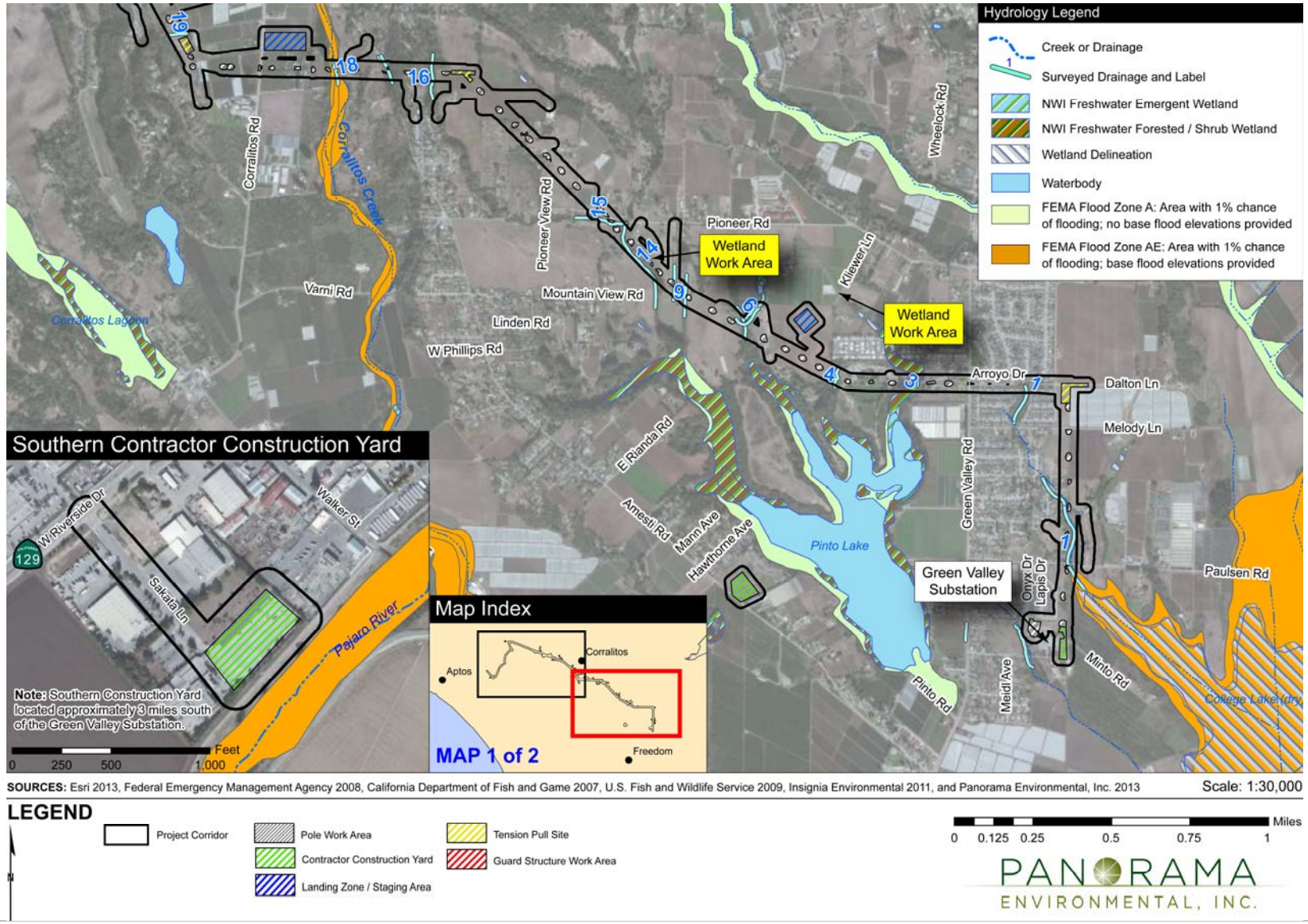


Figure 3.9-2: Surface Water Features in the Project Corridor, Map 2

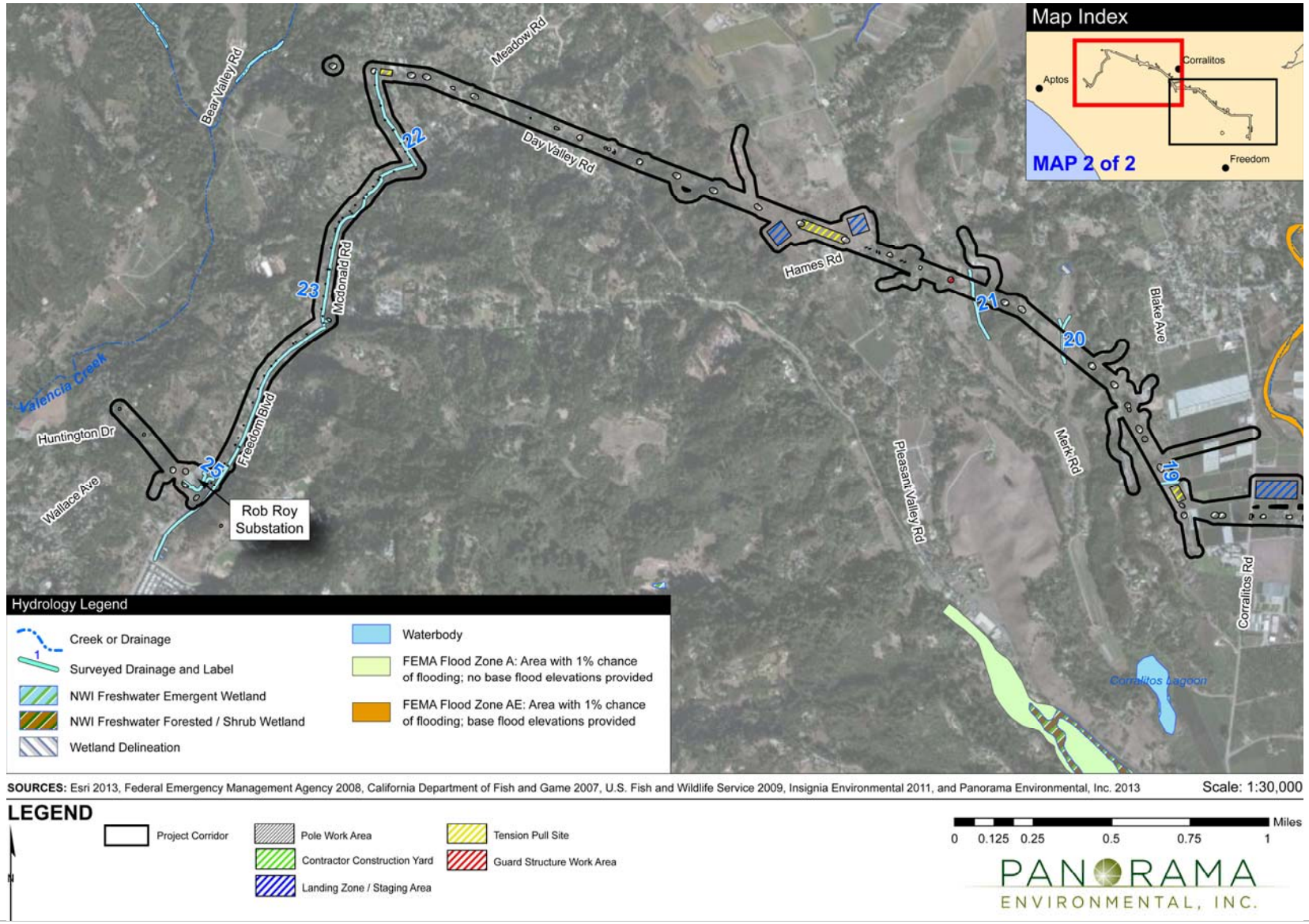


Table 3.9-1: Surface Water Features in the Project Corridor

Resource Number[1]	Feature Type	Within Currently Proposed Project Work Area/Corridor?	Potential ACOE Jurisdictional Feature?[2]	CDFW Jurisdictional Feature?	Vegetation Community Type
1	Drainage	No	Yes	Yes	Coastal Riparian
2	Seep	No	Yes	No	Freshwater Emergent Wetland
3	Drainage	No	Yes	Yes	Coast Oak Woodland
4	Drainage	No	Yes	Yes	Coast Oak Woodland
5	Ditch	No	Yes	Yes	Coastal Riparian
6	Drainage	No	Yes	Yes	Coastal Riparian
7	Drainage	No	Yes	Yes	Coastal Riparian
8	Seep	No	Yes	Yes	Freshwater Emergent Wetland
9	Drainage	No	Yes	Yes	Freshwater Emergent Wetland
10	Drainage	No	Yes	Yes	Freshwater Emergent Wetland
11	Pond	No	Yes	Yes	Lacustrine
12	Pothole pond	No	Yes	Yes	Lacustrine
13	Pond	No	Yes	Yes	Lacustrine
14	Drainage	Yes	Yes	Yes	Coastal Riparian
15	Drainage	No	Yes	Yes	Coastal Riparian
16	Drainage	No	Yes	Yes	Nonnative Woodland
17	Ditch	No	Yes	Yes	Disturbed Developed
18	Creek (Corralitos Creek)	No	Yes	Yes	Coastal Riparian
19	Drainage	No	Yes	Yes	Disturbed Developed and Mixed Chaparral
20	Ditch	No	Yes	Yes	Disturbed Developed
21	Drainage	No	Yes	Yes	Coastal Riparian
22	Ditch	Yes	Yes	Yes	Disturbed Developed
23	Ditch	Yes	Yes	Yes	Disturbed Developed

Table 3.9-1 (*Continued*): Surface Water Features in the Project Corridor

Resource Number[1]	Feature Type	Within Currently Proposed Project Work Area/Corridor?	Potential ACOE Jurisdictional Feature?[2]	CDFW Jurisdictional Feature?	Vegetation Community Type
24	Ditch	No	Yes	Yes	Disturbed Developed
25	Ditch	Yes	Yes	Yes	Disturbed Developed
26	Ditch	No	Yes	Yes	Disturbed Developed
27	Ditch	No	Yes	Yes	Disturbed Developed

Notes:

1 Drainages listed in this table are labeled in Figures 3.9-1 and 3.9-2.

2 This assessment is based on preliminary field observations; wetland delineations have not been conducted except for the two wetland work areas described in the text.

Source: PG&E 2012

The project corridor spans wetlands bordering Pinto Lake. Wetlands within the project corridor are restricted to the areas around Pinto Lake, located northwest of Green Valley Substation, and College Lake, a seasonally dry lake bed located directly east of Green Valley Substation. NWI-mapped wetlands are shown on Figure 3.9-1.

One wetland work area is located within the project corridor, at resource number 14 in Table 3.9-1. Potentially jurisdictional features in this location include two stock ponds and a seasonal wetland. The seasonal wetland at pole location E-30 appears to be principally fed by underground flow from an on-site stock pond or from leaking well equipment. Precipitation also serves as a water source. The wetland is adjacent to a relatively permanent water, which drains into Pinto Lake, a traditionally navigable water (AECOM 2013).

Wetland work would also occur at one location outside the project corridor, on Kliewer Lane, where culverts would be upgraded at a wetland crossing to accommodate heavy equipment. The potentially jurisdictional feature at this location is a relatively permanent water, which flows through the culverts. The waters at this location consist of agricultural runoff and precipitation. The water drains through a series of small ponds and into Pinto Lake, as well (AECOM 2013).

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. An SFHA is also referred to as a 100-year flood zone. The project corridor spans the SFHA of Corralitos Creek. The alignment is located near the SFHAs associated with Pinto Lake and College Lake. FEMA flood zones in the project corridor are shown on Figure 3.9-1 and Figure 3.9-2.

There are six dams located in the County regulated by the State Division of Safety of Dams (Santa Cruz County 2010). The closest dam is located more than 8 miles southeast of the eastern extent of the project corridor, east of the City of Watsonville. There are no dams or levees located within the project corridor. The nearest levee flood gate is located in the City of Watsonville on Corralitos Creek, approximately 1.6 miles southeast and downstream of Green Valley Substation. The project corridor is not located within the Corralitos Creek levee failure inundation area.

Tsunamis and Seiches

Monterey Bay borders the County to the west. Several active and potentially active earthquake faults are located within or near the County, including offshore (*e.g.*, San Gregorio Fault; see Section 3.6: Geology and Soils). An earthquake occurring offshore or as far away as Asia could result in tsunami generation that could impact the County. However, the project corridor is located approximately 2 miles from the coastline at its closest point and is not located in a tsunami inundation area (Santa Cruz County 2010).

The project corridor does not span any lakes, pools, or other enclosed water bodies. A portion of the project corridor is located within approximately 0.25 miles of the north shoreline of Pinto Lake. Movement on any of the active or potentially active faults located in the project vicinity could possibly result in creation of a seiche (standing wave in an enclosed body of water) on Pinto Lake; however, the lake is shallow and the effects, if any, would be restricted to the immediate vicinity of the shoreline. There are several other lakes in the vicinity of the project corridor that are much smaller than Pinto Lake but are located more than 0.25 miles from the project corridor.

Groundwater

The primary water-bearing unit in the Pajaro Valley Groundwater Basin is the Aromas Red Sands (CDWR 2006). The basin is in a state of overdraft (*i.e.*, more water is being extracted than is naturally recharged through soils and stream valleys). Basin recharge occurs through direct infiltration of precipitation, irrigation water percolation, and stream flow seepage from the Pajaro River and its tributaries. Recharge to aquifers overlain by clay layers generally occurs in the eastern portions of the basin, where clay layers are discontinuous. Groundwater levels vary seasonally throughout the County, with higher levels occurring during the winter rainy season and lower levels occurring during the summer. Annual fluctuations in depth-to-groundwater can vary by as much as 10 to 20 feet. The sustainable yield of the basin is estimated to be approximately 24,000 acre-feet per year (CDWR 2006).

Water Quality

Urban, rural, and agricultural runoff impacts water quality in the County, with the major pollutants including sediment, nutrients, and pathogens (*e.g.*, *E. coli*). Sources of pollutants to surface waters within the project corridor include urban runoff from the unincorporated communities of Corralitos and Amesti.

Section 303(d) of the 1972 federal Clean Water Act (CWA) requires states to identify water bodies that do not meet water quality objectives and are not supporting their beneficial uses. Each state must submit a list, called the 303(d) list, to the Environmental Protection Agency (EPA) every two years. In addition to identifying the water bodies that are not supporting beneficial uses, the list also identifies the pollutant causing impairment, and establishes a priority for developing a control plan to address the impairment. Section 303(d)-listed water bodies in the project corridor are listed in Table 3.9-2.

Pajaro Valley groundwater is affected by seawater intrusion within approximately 2 miles of the coast. Groundwater is also affected by hardness, nitrates, sulfates, iron, manganese, boron,

Table 3.9-2: Section 303(d)-listed Water Bodies in the Project Corridor

Water Body	Approximate Distance from Project Corridor (miles)	Pollutants	Proposed Total Maximum Daily Load (TMDL) Completion Date
Corralitos Creek	0.0 (spanned)	• *E. coli* • Fecal coliform • pH • Turbidity	2011 2011 2021 2021
Pinto Lake	0.1	• Chlorophyll • Cyanobacteria hepatotoxic microcystins • Low dissolved oxygen • pH • Scum/foam – unnatural	2013 2013 2013 2013 2013
Valencia Creek	0.3	• Pathogens • Sedimentation/siltation	2011 2021
Harkins Slough	1.3	• Chlorophyll • Low dissolved oxygen • Pathogens	2021 2021 2007[1]
Salsipuedes Creek	1.5	• *E. coli* • Fecal coliform • Low dissolved oxygen • pH • Turbidity	2011 2011 2021 2021 2021
Struve Slough	1.6	• Low dissolved oxygen • Pathogens • pH	2021 2007[1] 2021
Aptos Creek	2.5	• Pathogens • Sedimentation/siltation	2011 2021

Note:

[1] Date refers to EPA approval of TMDL.

Source: CCRWQCB 2010

heavy metals, and organics. The Pajaro Valley is increasingly affected by nitrate contamination as a result of agricultural activities and high-density septic tank use (CDWR 2006).

Drinking Water Supplies

Santa Cruz County potable water is locally derived from surface water sources (20 percent) and groundwater sources (80 percent). The project corridor is located within the jurisdiction of two water management districts: the Pajaro Valley Water Management Agency (PVWMA) and the Central Water District (CWD). A portion of the project corridor is within the service area of the City of Watsonville Department of Public Works and Utilities (WDPW).

PVWMA's service area includes the southernmost portion of Santa Cruz County and portions of northernmost Monterey County, with the northwest boundary of the agency's jurisdiction just northwest of the community of Corralitos (PVWMA 2012). The majority of the project corridor falls within the PVWMA's service area. PVWMA is a not a water provider, but a management agency that develops supplemental supplies and manages aquifers for overdraft and seawater intrusion within the agency boundaries. CWD serves approximately 2,700 customers in the unincorporated areas of Aptos in the foothills of the Santa Cruz Mountains, and obtains its water from five groundwater wells screened in the Purisima and the Aromas Red Sand Formations. Water in the southern part of the project corridor, within and north of the City of Watsonville, is provided by WDPW, which obtains its water from fourteen groundwater wells and eight reservoirs, serving 66,000 customers (WDPW 2012). Other areas not served by CWD and WDPW obtain water from private groundwater wells, which are regulated by Santa Cruz County Environmental Health Services.

3.9.2 Applicant Proposed Measure

PG&E proposed to implement measures that would reduce environmental impacts. The following relevant APM is considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include this APM as part of the project, and PG&E would have to adhere to the APM. The APM that is applicable to the hydrology and water quality analysis is shown in Table 3.9-3.

Table 3.9-3: Applicant Proposed Measure for Hydrology and Water Quality

APM Number	Requirements
APM HYD-01. Implementation of a SWPPP.	PG&E will file a Notice of Intent with the State Water Resources Control Board for coverage under the General Construction Storm Water Permit and will prepare and implement a SWPPP in accordance with General Order No. 2009-0009-DWQ. Implementation of the SWPPP will help stabilize graded areas and waterways and reduce erosion and sedimentation. The following measures are generally drawn from that permit and PG&E's standard practices, and will be included in the SWPPP prepared for the construction of the project: 1. All Best Management Practices (BMPs) will be on- site and ready for installation before the start of construction activities. 2. BMPs will be developed to prevent the acceleration of natural erosion and sedimentation rates. A monitoring program will be established to ensure that the prescribed BMPs are followed throughout project construction. All materials shall be certified weed-free. Examples of BMPs include, but are not limited to, the following measures. The appropriate measures will be applied depending on specific site conditions. • Straw wattles, water bars, covers, silt fences, coir logs, sensitive area access restrictions (e.g., flagging), or other sediment containment methods placed around and/or down slope of work areas prior to earth disturbing activities and before the onset of winter rains or any anticipated storm events. • Mulching, seeding, or other suitable measures to protect exposed areas during construction activities as necessary; • Installation of additional silt fencing prior to construction to address unforeseen runoff into nearby wetlands and drainages; • Use of brooms and shovels (as opposed to water) when possible to maintain a clean site; • Construction of a stabilized construction entrance/exit to prevent tracking of dirt onto public roadways; • Establishment of a vehicle storage, maintenance, and refueling area, if needed, to minimize the spread of oil, gas, and engine fluids; • No overnight parking of mobile equipment within 100 feet of wetlands, culverts, or drainages; and • Positioning stationary equipment (e.g., pumps, generators, etc.) used or stored within 100 feet of wetlands, culverts, or drainages within secondary containment. 3. All BMPs will be inspected before and after each storm event. BMPs will be maintained on a regular basis, and replaced as necessary throughout the course of construction. 4. A Qualified SWPPP Practitioner will supervise placement of silt fencing to limit the area of disturbance. The silt fence will be monitored regularly to ensure effectiveness.

3.9.3 Environmental Impacts and Assessment

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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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 would include the use of heavy machines that operate with petroleum products, hydraulic oil, and other chemicals (see Table 3.8-2 in Section 3.8: Hazards and Hazardous Materials). Potential impacts to surface waters from polluted stormwater runoff would be minimized through containment of any releases before they can impact stormwater, as specified in the Stormwater Pollution Prevention Plan (SWPPP), the implementation of which is required by APM HYD-01. The SWPPP also would minimize potential impacts to surface water turbidity, which could result from increased erosion and sedimentation during ground-disturbing activities. Such activities include the clearing of up to 46 acres of existing vegetation.

Access roads and overland routes have been defined to avoid water bodies; however, fill material would be discharged to potentially jurisdictional waters at two locations. The first location involves the fill with rock aggregate of approximately 180 square feet of potentially jurisdictional waters at 193 Pioneer Road. The second potentially jurisdictional water would be impacted through replacement of an existing plastic culvert on Kliewer Lane with a steel culvert, and would involve discharge of fill material to approximately 40 square feet of seasonal wetlands. PG&E would implement APM HYD-01. Fill of these areas could result in impacts related to water quality and would be considered a discharge. Best Management Practices (BMP) would be developed for each activity that has the potential to degrade surrounding water quality, and these BMPs would be included in the SWPPP. BMPs would be implemented, inspected, and modified, as needed, throughout project construction by a Qualified SWPPP Practitioner. PG&E would also obtain a Nationwide 404 Permit from the ACOE and a Section 401 Water Quality Certification from the Central Coast Regional Water Quality Control Board.

In areas where water crossings would not be used, hydrologic features would be flagged for avoidance. The project corridor spans Corralitos Creek, which is a 303(d)-listed water body for *E. coli,* fecal coliform, pH, and turbidity. Other portions of the project corridor are located in watersheds for other 303(d)-listed water bodies listed in Table 3.9-2**.** PG&E would implement the SWPPP in these locations, per APM HYD-01. The proposed project also includes APM HAZ-02, which requires the Spill Prevention, Control, and Countermeasure Plan for Rob Roy Substation to be updated to reduce the likelihood of contamination from an accidental spill. Impacts would be less than significant.

Operation and Maintenance

Operation and maintenance activities would use existing access routes and would generally not involve any new ground disturbance that could cause erosion and sedimentation. During operation or maintenance activities, the potential risk of contamination from the release of chemicals from equipment into existing water drainages would be negligible.

Herbicides may be applied around TSPs and wood poles to control vegetation in these areas and in restoration areas to control non-native and invasive weeds. Herbicides would be applied in the same way as they are currently applied. Herbicides would not be applied in waterways, would be applied in small amounts, and would be applied in compliance with applicable regulations. Herbicide application would therefore not result in violation of any water quality standards. Impacts during operation would therefore 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

Water use during construction would be minimal. Water would be required for dust control as required by the SWPPP (APM HYD-01) and APM AIR-01, and may be further required to keep sandy soils firm during auguring of new pole holes. Approximately 0.74 acre-feet (240,000 gallons) of water would be used for dust control during the 15- to 18-month construction period. Water would be obtained from the City of Santa Cruz Municipal Utilities or the City of Santa Cruz Neary Lagoon Treatment Plant. The amount of water required for project construction would be minimal (equivalent to an average of approximately 2 gallons per minute during working hours) and would not substantially deplete groundwater supplies. The sustainable yield of the Pajaro Valley Groundwater Basin is approximately 24,000 acre-feet per year. The 0.74 acre-feet of water estimated to be required for project construction would represent 0.003 percent of the total yield and would have a less-than-significant effect on groundwater supplies.

After grading has been completed, depending on substrate conditions, a layer of gravel may be spread over work areas to reduce tracking and minimize wind and water erosion. At Rob Roy Substation, consistent with the County Code, gravel would later be replaced with secondary containment areas. Approximately 0.1 acre of impervious surface would be added to Rob Roy Substation to accommodate installation of new components. An estimated 79 to 86 new TSPs would be installed in the project corridor, each with a 3- to 7-foot-diameter concrete foundation, which would result in the addition of up to 0.1 acres of impervious surface. New wood poles and crossing structures would not require foundations and, as a result, would occupy a negligible footprint. An estimated 86 to 98 existing poles would be removed during project construction, resulting in the addition of pervious surface to the project corridor. The total amount of impervious surface that would be added to the project corridor would be less than 0.2 acres, which would not significantly impact infiltration to the groundwater table. Groundwater recharge would not be affected, and the local groundwater table would not be lowered.

Project construction would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Impacts would be less than significant.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to current operation and maintenance activities and would not change the existing needs for water supplies in the region of the project corridor, of which groundwater is a part. Any maintenance-related activities would be minimal in extent and generally would not involve the placement or expansion of impervious materials. Impacts would be less than significant.

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
Construction of the proposed project would require approximately 46 acres of land to be graded and/or cleared of vegetation over an estimated 184 non-contiguous work areas. Construction-related activities would not result in large areas of ground disturbance within one contiguous area or significant alteration of drainage patterns.

The total amount of impervious surface that would be added to the project corridor would be less than 0.2 acres, which would not significantly impact the rate or amount of stormwater or other surface runoff, and as such would not increase the incidence of erosion or siltation. After project structures have been installed, all areas that were temporarily disturbed would be restored to pre-construction conditions, to the extent practicable. Restoration would include returning areas to their original topographic contours and allowing natural regrowth or performing reseeding in accordance with prearranged landowner agreements, where applicable. Such measures would return work areas to pre-construction conditions and the potential for erosion and sedimentation would essentially be the same as prior to construction.

Erosion during project construction would be less than significant because of the short duration of construction (up to 15 to 18 months), the limited areas that would be graded and/or disturbed at any one time, and the use of standard BMPs to minimize erosion, sedimentation, and stormwater runoff. These BMPs would be specified in the SWPPP to be prepared as directed by APM HYD-01. Implementation of the SWPPP would minimize construction impacts on erosion and siltation resulting from ground disturbance and from alteration of drainage patterns. Impacts would be less than significant.

Operation and Maintenance
Drainage patterns would be returned to near pre-construction conditions upon completion of construction. Operation and maintenance activities for the rebuilt power line would be similar in scope to those currently existing, and would continue to be performed on above-grade structures. Any maintenance-related excavation activities would generally occur within the existing right-of-way (ROW), in areas that were previously disturbed during construction or historical maintenance, and would be minimal in extent. Substantial erosion or siltation on or off site would not occur. Impacts would be less than significant.

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

Project construction would include removal of existing poles that are currently located within drainages, and no new poles would be installed within drainages. Minor grading would be required but it would not alter drainage patterns such that flooding could occur. Approximately 0.2 acres of impermeable surface would be added within the project corridor as a result of the installation of new poles, removal of existing poles, and modifications of Rob Roy Substation. New impermeable surface would not be contiguous and would be relatively small at each location; less than 0.1 acres across the pole sites and approximately 0.1 acre at Rob Roy Substation. Drainage at each location would occur within the same general area as before. Minimal increases in impermeable surface would not substantially increase either the existing velocity or volume of stormwater flows or the elevation of on site or off-site areas. Flow rates and volumes would not be substantially altered and existing drainage patterns on site would not change significantly from pre-construction conditions. No flooding is anticipated to occur as a result of the proposed project. Impacts would be less than significant.

Operation and Maintenance

Drainage patterns would be returned to near pre-construction conditions upon completion of construction. Operation and maintenance activities for the rebuilt power line would be similar in scope to those currently existing and would continue to be performed on above-grade structures. Any maintenance-related excavation activities would generally occur within the existing ROW, in areas previously disturbed during construction or historical maintenance, and would be minimal in extent. Substantial flooding on or off site would not occur. No impacts would occur.

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

The only stormwater drainage system in the project corridor consists of roadside ditches and culverts along the east side of Freedom Boulevard. There are no municipal stormwater drainage facilities in the project corridor that could be impacted by project construction. The total amount of impervious surface that would be added to the project corridor would be less than 0.2 acres, which would not significantly impact the quantity of runoff water. Increased runoff could also occur as a result of vegetation removal and soil compaction in temporary work areas and on unpaved access roads. A preliminary estimate of approximately 46 acres of land would be graded and/or cleared of vegetation. However, the land to be graded or cleared is not contiguous and would be spread out over about 184 different work areas, not including access roads that would require minor grading. Construction-related activities would not result in

large areas of ground disturbance within one contiguous area and effects on the amount of stormwater runoff would be minimal. Most of the water applied to project work areas for dust control would infiltrate the ground at or near the point of application and would not cause a substantial increase in runoff.

PG&E would also prepare and implement a SWPPP, in accordance with APM HYD-01, to minimize construction impacts on water quality resulting from stormwater and non-stormwater runoff. The plan would designate BMPs (*e.g.*, silt fences, stockpile management, and waste management) that would be implemented, inspected, and monitored during construction by a Qualified SWPPP Practitioner. In addition to minimizing effects to water quality, erosion and sedimentation control BMPs in the SWPPP would ensure that the quantity of runoff water generated from the site is relatively unchanged during project construction. With implementation of APM HYD-01, impacts associated with runoff water would be minimized and the capacity of existing stormwater drainage systems would be minimally affected. Impacts would be less than significant.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to those currently existing and would not alter the quantity or quality of runoff water currently discharging from the project corridor. Any maintenance-related activities would be minimal in extent and generally would not involve the placement or expansion of impervious materials. Impacts would be less than significant.

F) Would the project otherwise substantially degrade water quality?

Construction
With implementation of a SWPPP, as required by APM HYD-01, construction activities would have a minimal potential to transport sediments or contaminants as a result of ground-disturbing activities during construction. Mitigation Measure Hazards-1 and APM HAZ-02 would further minimize the potential for contamination of nearby waterways. Impacts to water quality would be less than significant.

Operation and Maintenance
Project operation and maintenance activities would not be expected to result in any actions that would substantially degrade water quality. No impacts would occur.

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 proposed project does not involve building or placement of any new housing. No impact would occur.

H) Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

The project corridor spans the 100-year flood zone of Corralitos Creek and is located near the 100-year flood zones associated with Pinto Lake and College Lake. No structures would be installed within flood zones during project construction. The proposed project would not generate any new impacts that do not currently exist because new poles generally would only replace existing poles at an approximate ratio of one-to-one, and would typically be installed in line with the existing alignment. Installation of the new poles and use of temporary work areas would not impede or redirect flood flows; therefore, no impacts would occur.

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
The project corridor spans the 100-year flood zone of Corralitos Creek and is located near the 100-year flood zones associated with Pinto Lake and College Lake. Construction of the proposed project, however, would not cause flooding that could expose people to significant risk of loss, injury, or death.

There are no dams or levees in the project corridor. The closest dam is located more than 8 miles southeast of the eastern extent of the project corridor, and the project corridor is not located within the Corralitos Creek levee failure inundation area. The proposed project would not expose people or structures to a significant risk of loss, injury, or death from flooding. The proposed project would have no impacts.

Operation and Maintenance
There are no dams or levees in the project corridor, and the project corridor is not located within the Corralitos Creek levee failure inundation area. Operation and maintenance activities for the rebuilt power line would not involve activities that could change the likelihood of exposure of people or structures to risks from flooding. No impacts would occur.

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 from the coast. The project corridor is located approximately 2 miles from the Pacific Ocean; therefore, impacts from tsunamis are unlikely. The project corridor does not span any lakes, pools, or other closed water bodies. The closest lake is Pinto Lake, located approximately 0.2 miles south of the project corridor. As discussed in Section 3.6: Geology and Soils, the project corridor consists of relatively flat terrain near Watsonville and hilly terrain elsewhere along the project corridor. Accordingly, the potential for mudflows in the project corridor is unlikely because it is not located downslope from steep canyons in which a mudflow could originate. Poles and crossing structures would be installed at depths of 8 to 33 feet below ground surface and, therefore, would be able to withstand an unlikely event such as a mudflow or a seiche on Pinto Lake. No impacts would occur.

3.10 LAND USE

3.10.1 Environmental Setting

Existing Land Use Designations

The project corridor is located entirely within unincorporated areas of the County of Santa Cruz. The County of Santa Cruz General Plan (Santa Cruz County 1994) land use designations for the project corridor are shown on Figure 3.10-1. Santa Cruz County Zoning Ordinance designations for the project corridor are shown on Figure 3.10-2.

Existing Land Uses

The County of Santa Cruz General Plan contains a set of policies and programs to guide future growth and development in a manner consistent with the goals and quality of life desired by the citizens of the County. These policies become the basis for all decisions related to the use of land and future expansion of the community. The County of Santa Cruz General Plan has designated the majority of lands in the vicinity of the project alignment for agricultural, rural residential, and suburban residential land uses as shown on Figure 3.10-1. Additional land uses have been designated closer to the City of Watsonville, near Green Valley Substation (a proposed storage yard), including various classes of urban residential (*i.e.*, very low, low, medium, and high), urban open space, and parks and recreation.

The County of Santa Cruz Zoning Ordinance contains the regulations that help implement the policies of the General Plan and land use and development goals. Most project corridor lands have been designated by the County of Santa Cruz Zoning Ordinance as agriculture, commercial agriculture, residential agriculture, and special use. Localized areas of single-family residential are located near the City of Watsonville and the communities of Cerritos and Freedom (Figure 3.10-2).

Relevant Regulations, Plans, and Policies

According to the County of Santa Cruz General Plan (Policy 2.21.4) (Santa Cruz County 1994), public utility transmission and distribution facilities, including substations, are allowed in all land use districts. The proposed project falls primarily within existing Pacific Gas & Electric (PG&E) rights-of-way (ROW). No discretionary permit is required for a proposed land use subject to the jurisdiction of the California Public Utilities Commission (CPUC) or the California Energy Commission, as provided in General Order 131-D. Ministerial permits, however, must still be obtained from local agencies, and a list of the potential permits and approvals required for the project is provided in Table 2.8-1.

Figure 3.10-1: Project Corridor General Plan Land Use Designations

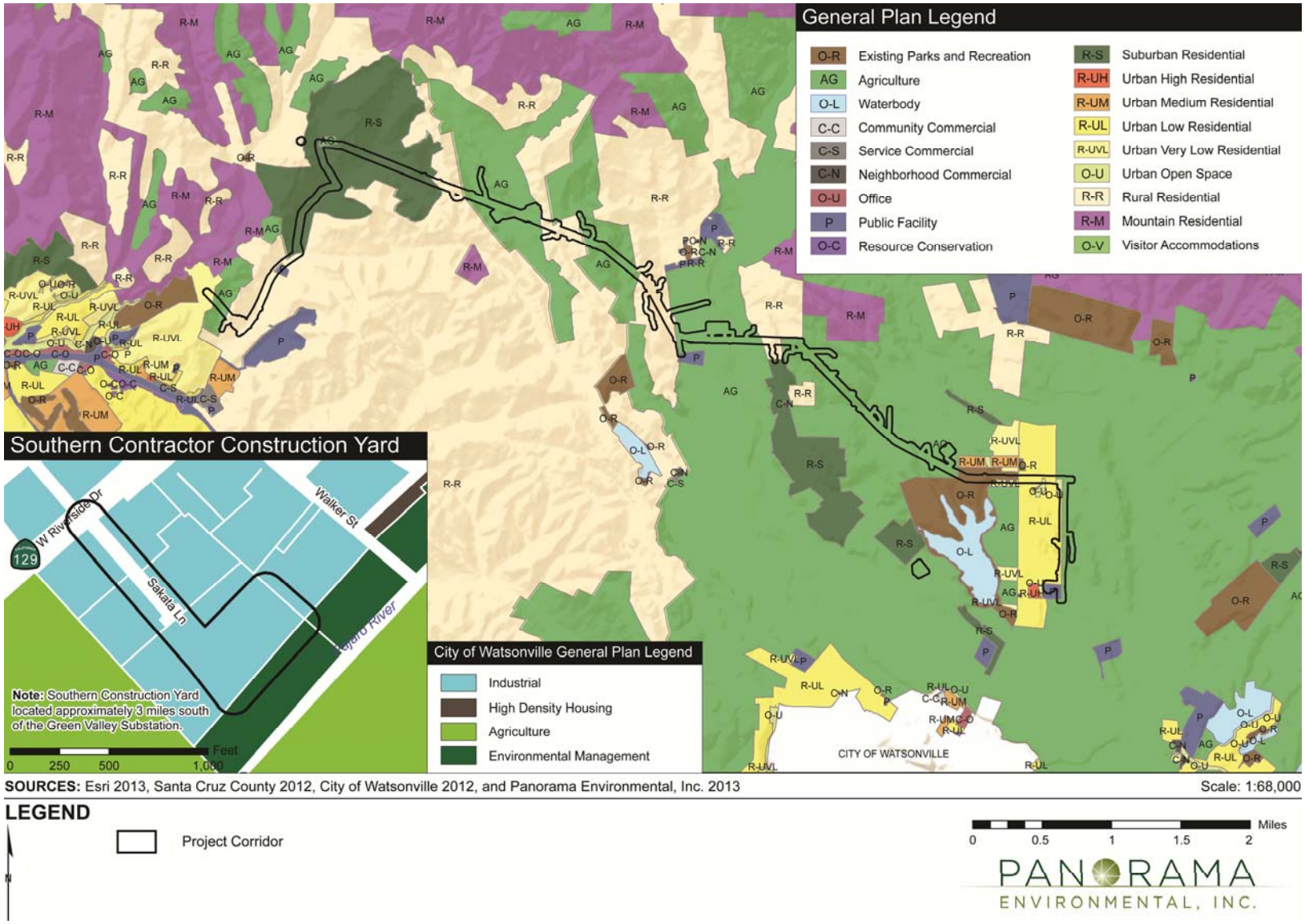
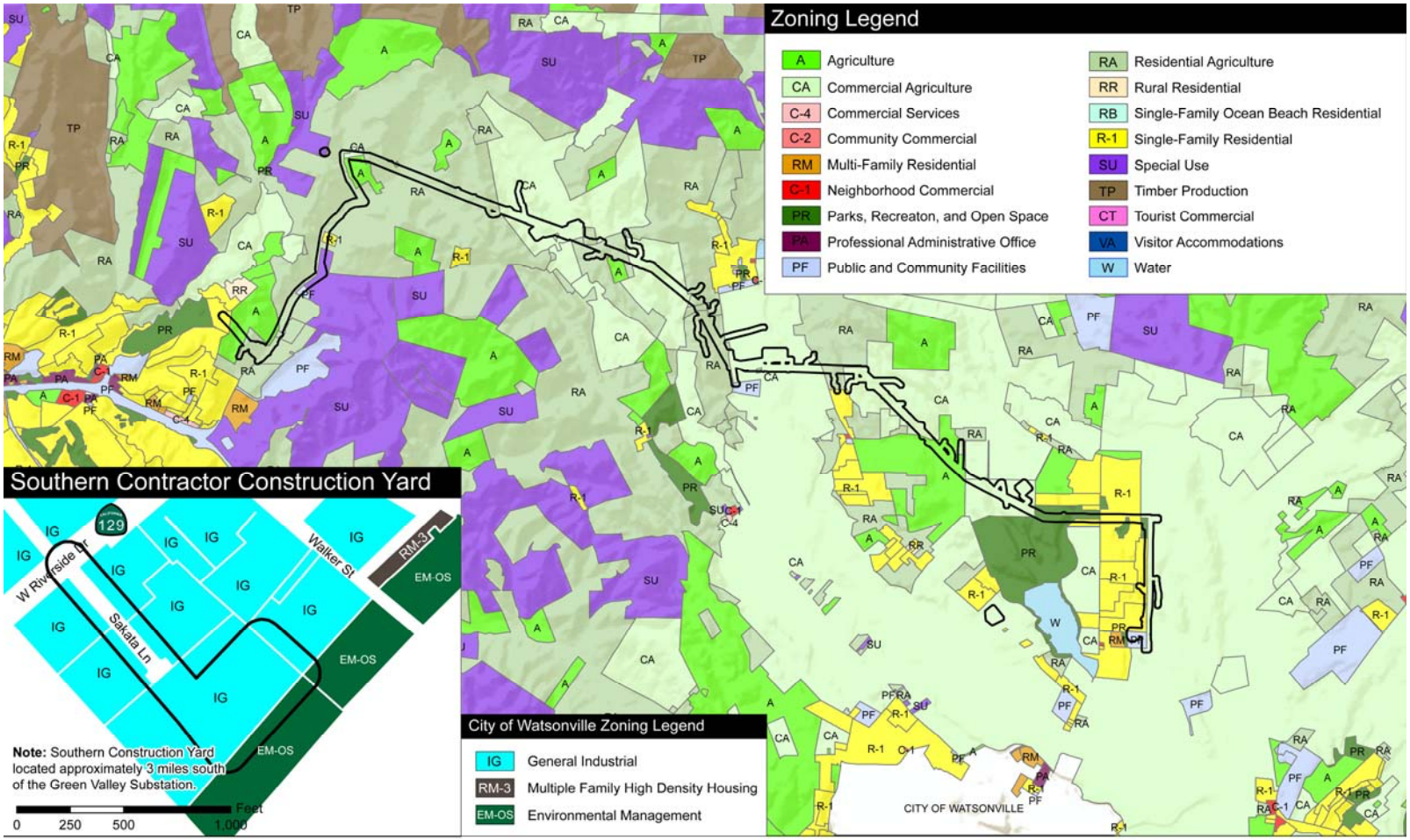


Figure 3.10-2: Project Corridor Zoning Ordinance Land Use Designations



Although public utility facilities regulated by CPUC are not subject to discretionary local land use and zoning regulations, the County of Santa Cruz General Plan contains several policies that, consistent with CPUC jurisdiction over the project, are considered with respect to the proposed project. The relevant Santa Cruz County General Plan policies are included in Appendix C.

There are no Habitat Conservation Plans (HCP) or Natural Community Conservation Plans (NCCP) applicable to the project corridor (CDFG 2012). The nearest HCP area (Tucker Pond Low-Effect HCP area) is south of Freedom Boulevard approximately 0.8 miles southeast of the project corridor. The Ellicott Slough Comprehensive Conservation Plan covers an area approximately 1.5 miles southeast of the Rob Roy Substation. This plan applies specifically to the Ellicott Slough National Wildlife Refuge and is not applicable to the proposed project (USFWS 2010). There are no NCCPs in Santa Cruz County.

3.10.2 Environmental Impacts and Assessment

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

Construction of the proposed project would primarily occur within or adjacent to existing utility ROWs and substation boundaries. The current ROW and substation boundary may require an expanded and additional ROW. ROW expansions are identified in Table 2.4-1. The expansions would parallel existing ROWs and be located within the existing property setbacks and, therefore, would not divide established communities.

Operation and Maintenance

The existing power lines do not currently divide an established community and the proposed project would not alter this situation; therefore, the proposed project would have no impact related to physically dividing an established community.

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 relevant General Plan policies are provided in Appendix C. A consistency analysis has been prepared that evaluates the proposed project's consistency with each policy. Construction, operation, and maintenance of the power line would not conflict with any of the plans, policies, or regulations. No impact would occur.

C) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

The proposed project would not conflict with any HCP or NCCP because no existing plans apply to the project corridor. No impact would occur.

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3.11 MINERAL RESOURCES

3.11.1 Environmental Setting

There are several active quarries and other mining areas in Santa Cruz County that provide mineral resources for use in industry and construction (Santa Cruz County 1994). Major mining resources in the County include shale, industrial sand, and cement (USGS 2011). In the project corridor region, Granite Construction Company's Freeman Quarry is an aggregate facility located in Gilroy, 11 miles east of Green Valley Substation. Granite Rock Company's Watsonville Concrete and Building Materials facility is located in the City of Watsonville, 3 miles south of Green Valley Substation. Cabrillo Sand and Gravel is a sand and gravel supplier located in Aptos, approximately 0.4 miles south-southwest of the project corridor. The locations of these facilities are shown on Figure 3.11-1.

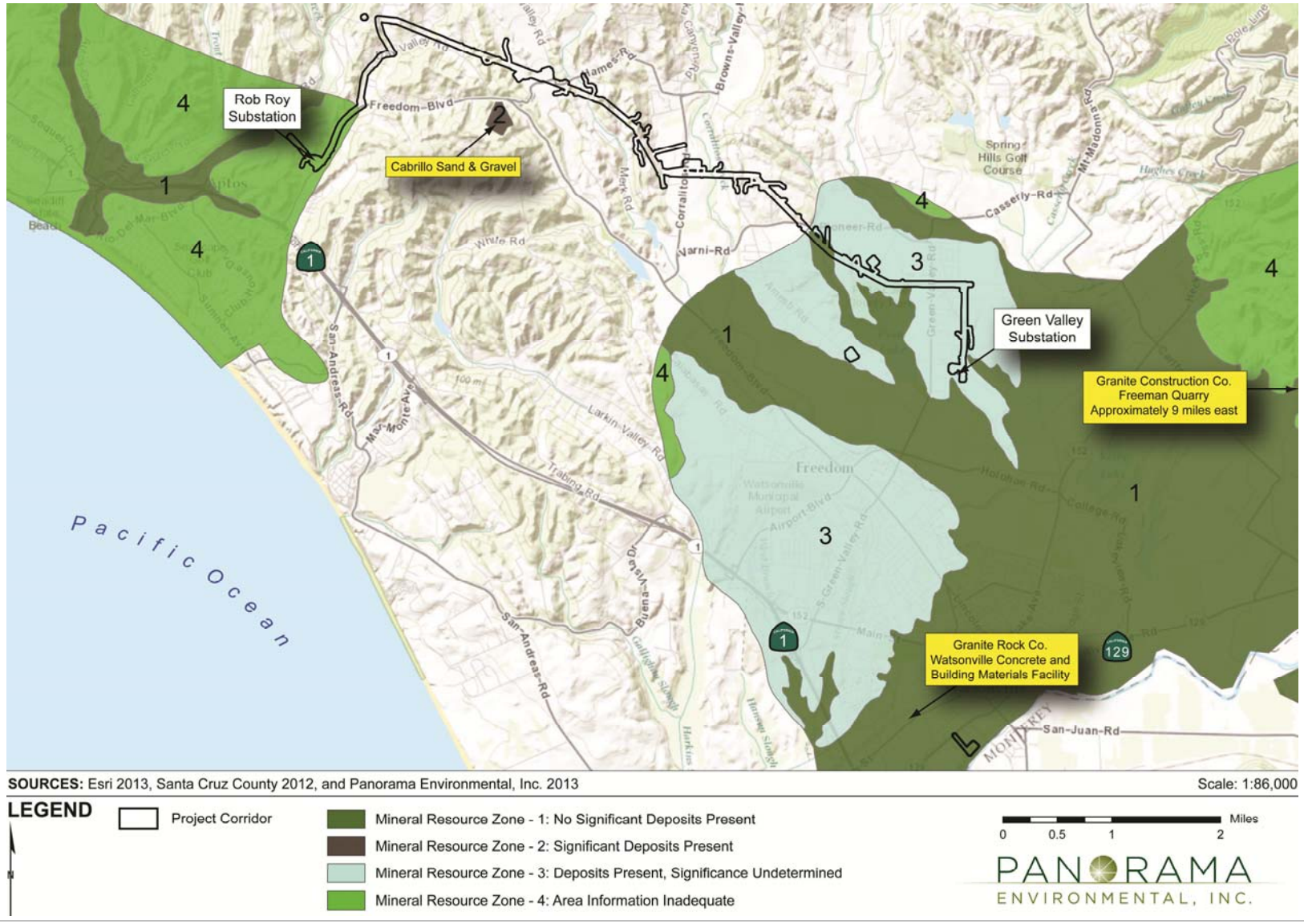
The California Surface Mining and Reclamation Act (SMARA) of 1975 requires the State Geologist classify land into mineral resource zones (MRZ) according to the known or inferred mineral potential of the land. MRZs are defined as follows:

- ***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.

According to the *State Mining and Geology Board's Mineral Land Classification and Designation under SMARA*, MRZs have been designated for the Monterey Bay Production-Consumption Region, which includes portions of the project corridor (SMGB 2008). MRZs have been assigned to the region around Watsonville and the local area around Aptos. MRZs that fall within the project corridor are shown on Figure 3.11-1.

One MRZ 2 area is located near the project corridor (SMGB 1987). This zone is located approximately 0.4 miles south of the project corridor in Aptos, about halfway between Rob Roy Substation and the community of Corralitos. It is currently being operated as Cabrillo Sand and Gravel. Most other designated lands in the project corridor are classified as MRZ 1 and MRZ 4. Localized areas near Green Valley Substation, including the location of the substation proper, are classified as MRZ 3.

Figure 3.11-1: Existing Mining Operations and Mineral Resource Zones in the Project Corridor Region



3.11.2 Environmental Impacts and Assessment

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?

A known mineral resource, designated as MRZ 2, is located approximately 0.4 miles south of the project corridor. Project construction and operation would occur an estimated 0.5 miles from the mineral resource, and access to the project corridor would not interfere with access to the mining operation facilities. The proposed project would not result in the loss of availability of this known mineral resource.

Portions of the project corridor cross MRZ 3 zones. The proposed project would not interfere with or prevent the future mining of these areas if they were to be developed in the future. Project construction and operation would have no impacts on the availability of known mineral resources.

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?

Locally important MRZs, as designated by Santa Cruz County, are present within the project corridor. Only the MRZ designated MRZ 2 on Figure 3.11-1 is currently being operated as a mineral resource recovery site. Project construction and operation would occur an estimated 0.5 miles from the mineral resource, and access to the project corridor would not interfere with access to the mining operation facilities. The proposed project would not result in the loss of availability of this locally important mineral recovery site, and there would be no impacts.

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3.12 NOISE

3.12.1 Environmental Setting

Definitions

Noise

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the lower limits of hearing. Table 3.12-1 lists the definitions of various acoustical terms.

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.
Statistical Noise Descriptor (L_x)	The noise level exceeded X percent of a specified time period. The value of X is commonly 10 (*e.g.*, L_{10}). Other values, such as 50 and 90, are also used.
Equivalent Noise Level (L_{eq})	The equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time-varying noise level during the same period.
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 Average Sound 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 highest instantaneous noise level during a specified time period. This descriptor is sometimes referred to as "peak (noise) level."
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 2009

Most of the sounds that we hear in the environment do not consist of a single frequency, but a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency combine to generate a sound. To quantify environmental sounds, it is common to evaluate all of the frequencies of a sound with a filter designed to reflect that human hearing is less sensitive at low frequencies and extremely high frequencies than in the middle range of frequencies (FRA 2005). This is called "A" weighting, and the decibel level measured is called the A-weighted sound level (dBA). The level of a sound source is measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Typical A-weighted sound levels for different types of noise from the environment and from industry are provided in Table 3.12-2.

Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a combination of noises from distant sources, which create a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10}, L_{50}, and L_{90} are commonly used. They are the A-weighted sound levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of a stated time period, respectively. A single numerical descriptor called L_{eq} is also widely used. L_{eq} is the average A-weighted sound level during the entirety of a stated time period (Caltrans 2009).

In determining the daily level of environmental noise, it is important to take into account that people respond differently to daytime and nighttime noises. Exterior background noises and the noise levels within houses are generally lower at night. This reduced noise level causes distinct noises to become far more noticeable, as there is less background noise to drown them out. To account for human sensitivity to nighttime noise levels, a descriptor, L_{dn} (day/night average sound level), was developed. L_{dn} divides the 24-hour day into the daytime of 7:00 AM to 10:00 PM and the nighttime of 10:00 PM to 7:00 AM. The nighttime noise level is weighted 10 dB higher than the daytime noise level. Construction-generated noise levels, which are generally stationary, and thus can be considered point sources, are reduced by 6 dB for every doubling of distance.

Groundborne Vibrations

Ground vibration consists of rapidly fluctuating motions or waves. Several different methods are typically used to measure vibration amplitude. One is the peak particle velocity (PPV) and another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. In this section, a PPV descriptor with units of millimeters per second or inches per second (in/sec) is used to evaluate the potential for construction-generated vibration to generate complaints from people or damage to buildings. Tables 3.12-3 and 3.12-4 describe the effects on buildings and the reactions of people resulting from continuous vibration. The annoyance levels shown in Table 3.12-4 should be

Table 3.12-2: Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**70**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**60**	
		Large business office
Quiet urban daytime	**50**	Dishwasher in next room
Quiet urban nighttime	**40**	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

Source: Caltrans 2009

Table 3.12-3: Vibration Impacts on Structures	
Structure Type/Condition	**Velocity Level, PPV (in/sec)**
Extremely fragile historical buildings, ruins, and ancient monuments	0.08
Fragile buildings	0.1
Historical and some old buildings	0.25
Older residential structures	0.3
New residential structures	0.5
Modern industrial/commercial buildings	0.5

Source: Caltrans 2006

Table 3.12-4: Human Response to Vibrations	
Human Response	**Velocity Level, PPV (in/sec)**
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035

Source: Caltrans 2006

interpreted with care because vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, even vibrations approaching the limits of perception can be annoying.

Low-level vibrations frequently cause secondary vibration, such as slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is little risk of structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling may also be produced by loud airborne environmental noise, causing vibration in exterior doors and windows.

The two primary concerns with construction-induced vibration—the potential to damage a structure and the potential to interfere with the enjoyment of life—are evaluated against different vibration limits. Studies have shown the lower limit of sound perception for the average person is in the range of 0.006 to 0.012 in/sec PPV. Human sensitivity to vibration varies from person to person, and is dependent on physical setting and the type of vibration. People exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can range from cosmetic, such as minor cracking of building elements, to damage that may threaten the integrity of the building. Safe vibration limits that can be used to

determine the potential for damaging a structure vary by researcher, and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is rare, and has only been observed in instances where the construction activity occurs immediately adjacent to a structure that is in a state of severe disrepair.

Corona

The localized electric field near an energized conductor can be sufficiently concentrated to produce a small electric discharge, which can ionize air close to the conductors. This effect is called corona, and it is associated with all energized electric power lines. Corona can result in the production of very small amounts of sound, radio noise, heat, and chemical reactions of air components. Modern power lines are designed, constructed, and maintained so that, during dry conditions, they operate below the corona-inception voltage and generate a minimum of corona-related noise. Corona-related noise is not usually an issue for lines rated at 230 kilovolts (kV) or less.

Noise Standards

Construction Noise

There are no federal or state standards for construction noise, and the California Environmental Quality Act does not specify a numerical threshold for "substantial increases" in noise. The Santa Cruz County General Plan also does not specify construction noise standards. County Planning Department permit requirements specify "offensive noise" may not occur between 10 p.m. and 8 a.m. (Darnley pers. comm. 2012), which is consistent with Chapter 8.30 of the Santa Cruz County Code.

The U.S. Department of Transportation (USDOT) has developed guidelines to assess impacts from construction noise. In the absence of noise criteria in local ordinances, USDOT recommends the development of project-specific noise criteria based on the existing noise environment, absolute noise levels during construction activities, construction duration, and area land use. Table 3.12-5 summarizes the USDOT guidelines. There may be an adverse reaction from the community if the noise levels in these guidelines are exceeded.

Table 3.12-5: Summary of USDOT Guidelines for Construction Noise

	8-hour L_{eq} (dBA)	
Land Use	**Day**	**Night**
Residential	80	70
Commercial	85	85
Industrial	90	90

Source: USDOT 2006

Permanent Noise Sources

In 1974, the U.S. Environmental Protection Agency (EPA) established guidelines for ambient noise levels and noise exposure. Although these guidelines are not standards, criteria, regulations, or goals, they are defined to protect public health and welfare with an adequate margin of safety, and to guide the implementation of local noise standards. The guidelines are listed below:

- L_{eq} over a 24-hour period of less than or equal to 70 dBA to protect against hearing loss
- L_{dn} of less than or equal to 55 dBA to protect against activity interference and annoyance in residential areas, farms, and other outdoor areas where quiet is a basis for use
- L_{eq} (24-hour) of less than or equal to 55 dBA to protect against outdoor activity interference where limited time is spent, such as in school yards and playgrounds
- L_{dn} of less than or equal to 45 dBA to protect against indoor activity interference and annoyance in residences
- L_{eq} (24-hour) of less than or equal to 45 dBA to protect against indoor activity interference in school yards

Based on the federal guidelines, the Santa Cruz County General Plan provides a set of guidelines that specify maximum allowable noise levels for new stationary sources of noise (Santa Cruz County 1994), which are provided in Table 3.12-6.

Noise Sources and Receptors

Regional Noise Environment

Land uses along the project corridor and vicinity are primarily low-density residential (rural and suburban), undeveloped open space, and agricultural. The primary noise sources associated with existing rural and suburban residential development include vehicles, landscaping equipment (*e.g.*, lawnmowers, chain saws, and weed trimmers), and barking dogs. Noise sources associated with existing agricultural use include vehicles, tractors, and gas-powered equipment used for vegetation management and harvesting. Other noise sources include substation transformers and natural sounds (*e.g.*, bird calls and wind).

The Watsonville Municipal Airport is located approximately 1.5 miles southwest of Green Valley Substation, and is the only public use airport in the County. Santa Cruz County does not have an Airport Land Use Commission; accordingly, no formal Airport Land Use Plan has been prepared for the Watsonville Municipal Airport. However, the airport has a Master Plan, which includes noise exposure contours in terms of CNEL for different levels of existing and future aircraft activity noise (Watsonville Municipal Airport 2002). The entire project corridor, including both substations, is located outside of the 55-dB noise contours presented in the Master Plan. There are no private airstrips within 5 miles of the project corridor. The closest private airstrip is located at Monterey Bay Academy in La Selva Beach, approximately 5.5 miles southwest of Green Valley Substation.

Table 3.12-6: Santa Cruz County Maximum Allowable Noise Exposure, New Permanent Stationary Noise Sources[1]

Parameter	Daytime[5] (7:00 AM—10:00 PM)	Nighttime[2,5] (10:00 PM—7:00 AM)
Hourly L_{eq} (dB)[3]	50	45
Maximum Level (dB)[3]	70	65
Maximum Level, Impulsive Noise (dB)[4]	65	60

Notes:

1 As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.

2 Applies only where the receiving land use operates or is occupied during nighttime hours.

3 Sound level measurements shall be made with "slow" meter response.

4 Sound level measurements shall be made with "fast" meter response.

5 Allowable levels shall be raised to the ambient noise levels where the ambient levels exceed the allowable levels. Allowable levels shall be reduced 5 dB if the ambient hourly L_{eq} is at least 10 dB lower than the allowable level.

Source: Santa Cruz County 1994

Noise and Vibration Study

Acentech, Inc. (Acentech), conducted a noise and vibration study for the project corridor. Ambient sound measurements were taken at six locations to characterize the existing environment over a 25-hour period spanning April 19 to 20, 2011 (Acentech 2011). The results of the survey are presented in Table 3.12-7.

Table 3.12-7: Results of Noise Survey in Project Corridor

Survey Location	Daytime L_{eq} (dBA)[1]	L_{dn} (dBA)
West of Rob Roy Substation	51	52
West of McDonald Road approximately 250 feet north of Ramada Lane	61	61
Rear of the side yard of 1750 Hames Road	42	42
Pole #47, approximately 1,200 feet northwest of the intersection of Corralitos Road and Skylark Lane	51	50
Backyard of 250 Arroyo Drive between Pole #11 and Pole #12	43	49
80 feet northwest of Green Valley Substation perimeter fence	46	51

Note:

1 L_{eq} for 15-hour period between 7:00 AM and 10:00 PM.

SOURCE: Acentech 2011

Sensitive Noise Receptors

Sensitive receptors found in the project corridor and vicinity include residences, religious centers, recreational facilities, hospitals, libraries, cultural centers, and schools. An estimated 1,567 residences are located in and within 1,000 feet of the project alignment, as currently proposed. The majority of residences are located near the southern portion of the project corridor, near the City of Watsonville. The nearest hospitals to the project corridor are Central Coast Surgery Center, located 1.2 miles southwest of Green Valley Substation, and Watsonville Community Hospital, located approximately 2.5 miles southwest of the project corridor. There are three schools within 1,000 feet of the alignment, as currently proposed. The closest schools to the project corridor are Aptos High School, 0.2 miles southeast of Rob Roy Substation, and Bradley Elementary School, 0.2 miles south of the project corridor in Corralitos. There are three parks within 1,000 feet of the alignment, as currently proposed. The project would span Pinto Lake County Park, with pole installation activities taking place within the park limits. Parks in the vicinity of the project corridor are discussed further in Section 3.10: Land Use and Planning and Section 3.15: Recreation.

The Freedom Branch of the Watsonville Public Library is located at 2021 Freedom Boulevard in the unincorporated community of Freedom, approximately 1 mile south of the nearest pole of the Northern Alignment. The Corralitos Cultural Center, an art gallery and performing arts venue, is located approximately 0.65 miles northeast of the nearest pole in Corralitos. Figures 3.12-1 and 3.12-2 identify the sensitive receptors within a 1,000-foot buffer of the project corridor.

Figure 3.12-1: Sensitive Receptors in the Vicinity of the Project Corridor, Map 1

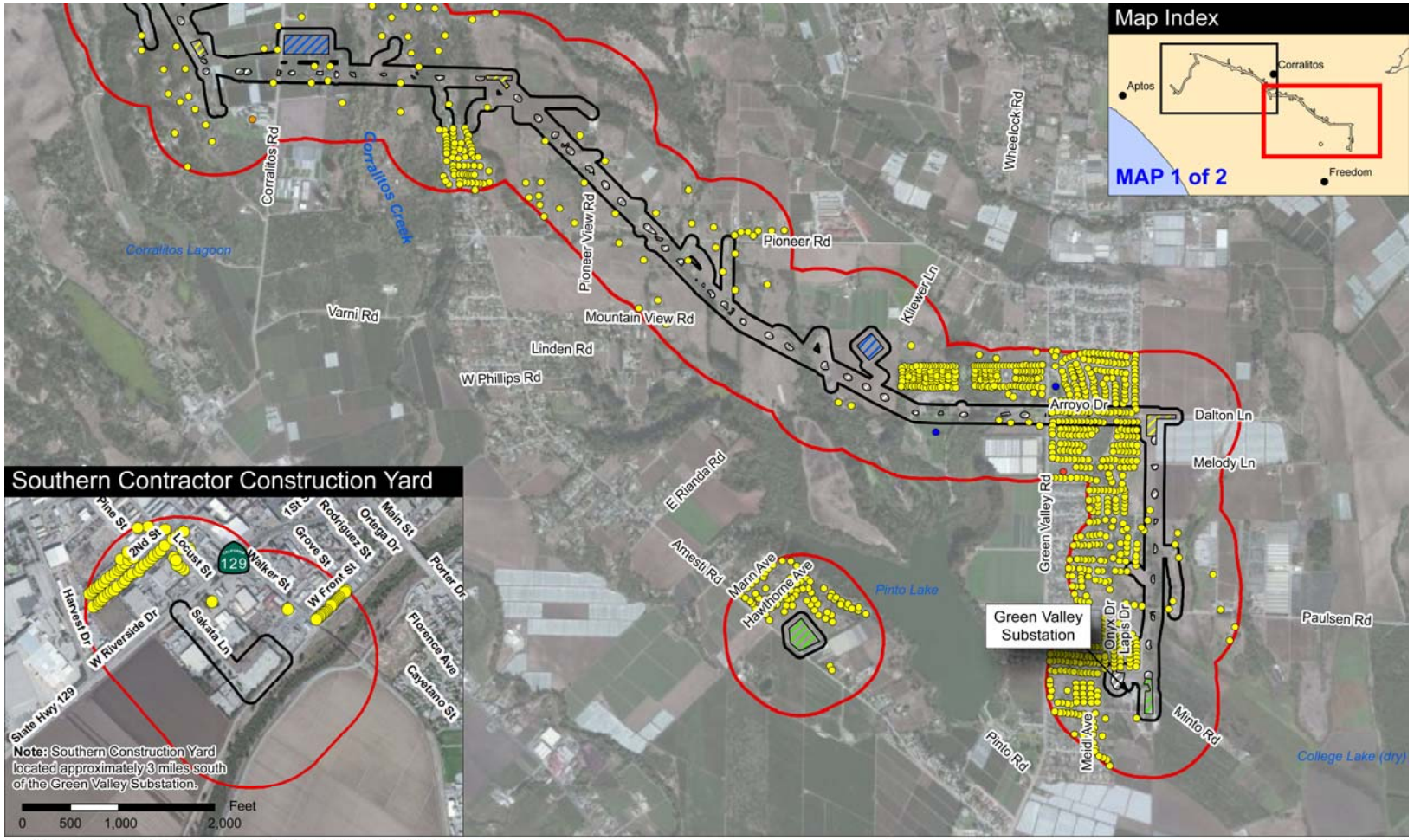
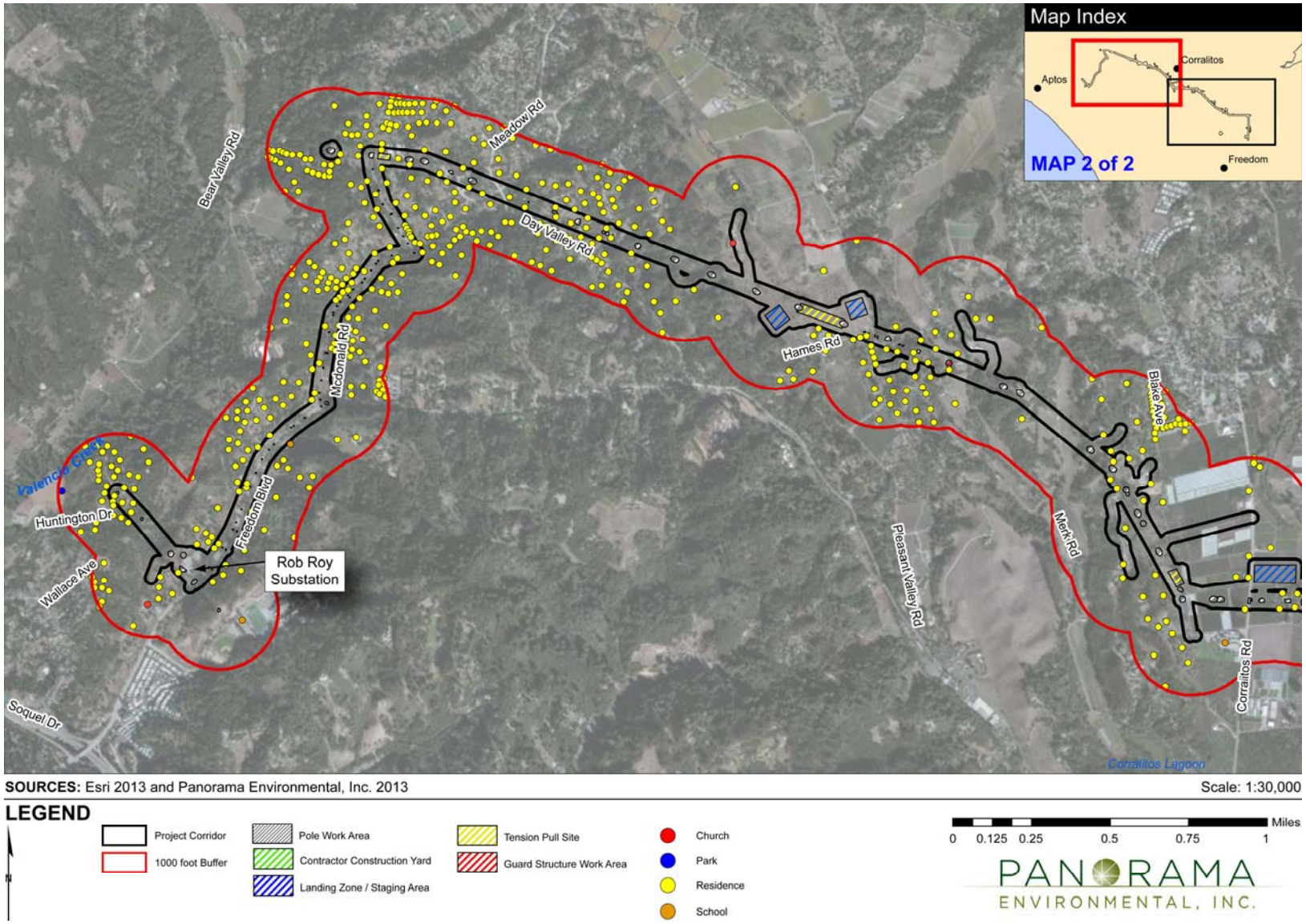


Figure 3.12-2: Sensitive Receptors in the Vicinity of the Project Corridor, Map 2



3.12.2 Applicant Proposed Measures

PG&E proposed to implement measures that would reduce environmental impacts. The following relevant APMs are considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include these APMs as part of the project, and PG&E would have to adhere to the APMs as well as the identified mitigation measure. The APMs that are applicable to the noise analysis are shown in Table 3.12-8. One APM was superseded with a mitigation measure, as noted in the impact analysis.

Table 3.12-8: Applicant Proposed Measures for Noise Impacts

APM Number	Requirements
APM NOI-01. Equipment Location and Orientation.	Equipment will be positioned to maximize the distance from residences and to maintain safe and effective operation.
APM NOI-02. Equipment Maintenance and Mufflers.	All internal combustion engine-driven equipment will be equipped with exhaust mufflers that are in good condition and that meet or exceed the manufacturers' specifications. All equipment will be maintained and tuned according to manufacturers' recommendations.
APM NOI-05. Restrict Helicopter Flight Paths.	Helicopters will maintain a height of at least 500 feet when passing above residential areas, except when they are at temporary construction areas or actively assisting with the stringing of conductor or other project activities. Helicopters will maintain a lateral distance of at least 500 feet from schools when in session.

3.12.3 Environmental Impacts and Assessment

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 groundborne vibration or groundborne 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 corridor to excessive noise levels?	☐	☐	☒	☐
F) For a project within the vicinity of a private airstrip, expose people residing or working in the project corridor 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?

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

There would be a significant noise impact if the project construction noise exceeded 80 dBA (8-hour L_{eq}) at a sensitive receptor location.

Power Line Construction

Proposed power line construction activities would require the use of noise-generating heavy equipment for grading, vegetation clearing, tree mulching, and the assembly, installation, and removal of structures. Noise generated from this equipment would be attenuated per APMs

NOI-01 and NOI-02 and Mitigation Measure Noise-1. Barriers that are correctly placed and well-designed would be expected to reduce construction equipment noise levels by 9 to 10 dBA.

> **Mitigation Measure Noise-1 (Supersedes APM NOI-04):** When construction activities are located within 50 feet of residences, a temporary noise barrier shall be placed between the residences and any noise-generating equipment that cannot move under its own power while in use. The barrier shall be installed within 3 feet of the noise source and shall be approximately 3 feet taller than the piece(s) of equipment. The distance between the barrier and the equipment may be adjusted to ensure safe equipment operation. The type of barrier used shall depend on the noise source, but should be installed without cracks or gaps in the face or large or continuous gaps at the base and have a minimum surface weight of 1.0 lb per sq. ft. The barriers may be constructed using one or more of the following:
>
> 1. Stacked hay bales.
> 2. Standing 0.75-inch-thick plywood or other solid sheet materials with equivalent surface mass.
> 3. Noise-attenuating construction blanket-type barrier materials secured to a cyclone fence or hung off of guy wires or other frame.
>
> Barriers shall be removed at the end of noise-generating activities at each location.

Equipment use would be temporary, intermittent, and restricted to the 15- to 18-month construction period. Construction would mostly occur Monday through Saturday between the hours of 7:00 AM to 5:30 PM, when certain sensitive receptors, such as residences, are least sensitive to elevated noise levels. Construction within each work area is anticipated to be short-term, lasting only a few days, further minimizing the total duration of elevated noise experienced by any one sensitive receptor.

The estimated temporary noise levels from equipment used for power line construction after attenuation at 50 feet are shown in Table 3.12-9. The equipment inventory for the project (Table 2.6-4) was used to determine average 8-hour noise emissions (L_{eq}[day]) based on estimated average hours of operation per day and typical usage at maximum noise level (PG&E 2012). The total L_{eq}(day) was computed for each scheduled activity category for each crew (some activities may include up to three crews working simultaneously at different locations within the project corridor). Except during landing and taking off, helicopters were assumed to operate at a height of approximately 50 feet when delivering equipment and materials, and when assisting with the installation and removal of poles and conductor.

Potential impact zones were developed by determining the distance from each construction activity where USDOT guidelines would be exceeded. Some locations along the Northern Alignment may use helicopters; therefore, distance estimates are shown for both with and without the use of helicopters for the Northern Alignment. The zones are summarized in Table 3.12-10. Residences within approximately 70 feet (Northern Alignment without helicopters), 100

Table 3.12-9: Construction Equipment Typical Noise Emission Levels

Equipment Type	Acoustical Usage Factor (%)[1]	L_{max} at 50 feet (dBA)	Attenuated L_{eq} Noise Level at 50 feet
Air Compressor	40	80	65
Auger Drill Rig	20	85	69
Backhoe	40	80	67
Bulldozer	40	85	72
Chainsaw/wood chipper/mulcher	20	85	69
Concrete Pump Truck	20	82	66
Crane	16	85	68
Dump Truck	40	84	71
Flatbed Truck	40	84	71
Generator	50	82	70
Lift Truck	20	85	69
Paver	50	85	73
Pickup Truck	40	55	42
Roller	20	85	69
Tractor	40	84	71
Water Truck[2]	40	84	71

Notes:

1 Acoustical usage factor is an estimate of the percentage of time the equipment is running at full power (*i.e.*, its loudest condition) on a typical construction site and is used for noise modeling.

2 Based on the noise level for a dump truck.

Source: FHA Roadway Construction Noise Model 2006

feet (Northern Alignment with helicopters), or 110 feet (Cox-Freedom Segment) of pull and tension sites may be exposed to similar noise levels during pulling activities.

Residences within approximately 40 to 50 feet of pole work areas may be exposed to 8-hour average noise levels of 80 dBA or greater during pole installation and removal activities. Exposure to these noise levels would be temporary, lasting only a few days at any one location, minimizing the total duration of elevated noise levels experienced by residents. Helicopter flight noise impacts would be minimal. For a helicopter in level flight and traveling at an altitude of 500 feet with an airspeed of about 60 knots, sound-pressure levels would range from about 77 to 94 dBA for a duration of 4 seconds before and after passing directly overhead. Structure sites requiring helicopter access are generally located in areas with low-density

Table 3.12-10: Potential Zones of Adverse Public Reaction to Noise

Activity	Distance to a Potential Adverse Public Reaction by Noise-receiving Land Use (feet)		
	Residential	Commercial	Agricultural
Northern Alignment			
Foundation Installation with Helicopters	180	100	60
Foundation Installation without Helicopters	40	<25	<25
Tubular Steel Pole Installation with Helicopters	280	160	90
Tubular Steel Pole Installation without Helicopters	50	30	<25
Pole Removal with Helicopters	180	100	60
Pole Removal without Helicopters	40	<25	<25
Pulling and Stringing with Helicopters	100	60	30
Pulling and Stringing without Helicopters	70	40	<25
Cox-Freedom Segment and Rob Roy Substation Connections			
Foundation Installation	40	<25	<25
Tubular Steel Pole Installation	50	30	<25
Direct-bury Installation	50	30	<25
Pole Removal	40	<25	<25
Pulling and Stringing	100	60	30
Rob Roy Substation Modification			
Fence Removal/Construction	40	<25	<25
Rough Grading	60	30	<25
Compaction	50	30	<25
Foundation/Duct Bank Installation	40	<25	<25
Equipment Installation	40	<25	<25
Final Grading/Paving and Testing/Commissioning	40	<25	<25

Source: PG&E 2012

residential development and, therefore, the potential for disturbance of large numbers of residents is minimal. PG&E would implement APMs NOI-01 and NOI-03 to reduce noise exposure to residents located within the areas delineated in Table 3.12-7. These APMs involve locating construction equipment as far from sensitive receptors as possible and maintaining all construction equipment in good condition.

Residences within 40 to 60 feet of Rob Roy Substation would be within the calculated zone of potential adverse public reaction. The closest residence to Rob Roy Substation is 80 feet away; therefore, there would be a less than significant impact from construction activities in this portion of the project corridor.

Helicopter Operations

Some construction activities would require the use of helicopters (Table 2.6-4) and helicopter landing zones. Helicopter noise levels would range from 77 to 84 dBA during takeoff and from 72 to 77 dBA during landing with a maximum possible noise level of 110 dBA at a distance of 50 feet from the landing zones. Noise generated by helicopters at the four landing zones is quantified in Table 3.12-11.

Table 3.12-11: Noise near Helicopter Landing Zones during Project Construction

Helicopter Landing Zone Location	Distance to Closest Receptor (feet)	Noise at Closest Receptor during Takeoff/Landing (dBA)[1]	Noise at Closest Receptor during Maximum Noise Scenario (dBA)[2]
Hames Road West	500	30	90
Hames Road East	350	33	93
Corralitos Road	113	43	103
Kliewer Lane	427	31	91

Notes:

1 Calculated using the maximum takeoff/landing noise level of 84 dBA.

2 Calculated using the maximum possible noise level during helicopter operations of 110 dBA at a distance of 50 feet.

Noise generated by helicopter takeoff and landing would be substantial but would be of such short duration (*e.g.*, 20 minutes per takeoff or landing) that the impacts would be considered less than significant. The proposed project includes APM NOI-05, which further minimizes noise effects from helicopter usage. Noise impacts from helicopter flights would be less than significant.

Staging and Storage Yard Usage

Within staging and storage yards, noise-generating heavy equipment would be used for the loading and unloading of equipment, materials, supplies, and power line structures. Noise generated by activities at the staging and storage yards is quantified in Table 3.12-12. Noise generated from this equipment would be attenuated per APMs NOI-01 and NOI-02.

Combined Noise Effects

Some areas may experience noise effects from multiple noise sources. The area with the highest concentration of work areas that could be active at the same time and that are closest to a sensitive receptor is likely the Green Valley Substation area, which contains two pole work areas and a contractor construction yard. Noise from both pole work areas at the sensitive

Table 3.12-12: Noise near Staging and Storage Areas during Project Construction

Staging or Storage Area Location	Distance to Closest Receptor (feet)	Noise at Closest Receptor from Staging and Storage Area Activities (L_{eq}, dBA)[1]
Sakata Staging Area	438	67
Amesti Road Contractor Storage Yard	260	71
Green Valley Substation	170	75
Hames Road West Contractor Storage Yard	500	66
Hames Road East Contractor Storage Yard	350	69
Corralitos Road Staging Area	113	79

Note:

[1] Noise levels assume the operation of a generator, man lifts, fork lifts, pickup, flat bed, and dump trucks at staging and storage areas. Acoustical usage factors from Table 3.12-9 are used for noise modeling.

Source: FHA Roadway Construction Noise Model 2006

receptor would be 68 dBA L_{eq} and noise from the Green Valley Substation work area would be 75 dBA. When combined at the sensitive receptor, this would result in noise of approximately 76 dBA if all three areas are undergoing simultaneous active construction activities. Impacts would thus be less than significant.

Operation and Maintenance

Operation and maintenance activities for the new power line would be similar in scope to existing operation and maintenance activities. With the exception of corona, no new noise sources are associated with project operation or maintenance. Increased corona resulting from the installation of an additional 115-kV power line would be equivalent to approximately 3 dBA (Acentech 2011). The addition of 3 dBA to the daytime noise levels in Table 3.12-7 would not appreciably increase the ambient noise level beyond that existing in the project area (Snapfour undated). There would, therefore, be no impact.

B) Would the project expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Construction

Construction activities may generate temporary, localized groundborne vibration. Vibration levels are dependent on the soil type at the construction site and the type of equipment used. Vibration amplitude decreases with distance from the source, as shown in Table 3.12-13.

The damage thresholds for older and newer residential buildings are 0.5 in/sec PPV and 1.0 in/sec PPV, respectively (Caltrans 2006). Vibration levels more than 10 feet from construction activities are below these criteria. No residential structures would be within 10 feet of any of the proposed structure locations and, therefore, no impacts are anticipated.

Table 3.12-13: Peak Particle Velocities at Defined Distances	
Equipment	**Peak Particle Velocity (in/sec) (25 feet from source)**
Jackhammer	0.035
Loaded ruck	0.076
Large bulldozer	0.089

Source: Caltrans 2004

PPVs associated with common construction equipment are identified in Table 3.12-13. The sensitive receptors closest to the proposed alignment are located at an estimated distance of 50 feet. Vibration from construction equipment would be below distinctly perceptible levels (*i.e.*, less than 0.24 in/sec) within 25 feet. Vibration effects on nearby sensitive receptors would be less than significant.

Operation and Maintenance

Operation and maintenance activities for the new double-circuit power line would be similar in scope to those currently ongoing. No new sources of vibration would be associated with project operation or maintenance; therefore, no impact would occur.

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 substantial permanent increase in ambient noise levels in the project corridor vicinity would not occur. With the exception of a minor potential increase in corona of approximately 3 dBA, structure replacement, conductor installation, and substation modification would not generate a new or different source of permanent noise. The addition of 3 dBA to the daytime noise levels in Table 3.12-7 would not appreciably raise the ambient noise level beyond that existing in the project area (Snapfour undated). Impacts would 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 corridor to excessive noise levels?

An ALUP has not been adopted for the Watsonville Municipal Airport, which is located approximately 1.5 miles southwest of Green Valley Substation. The project corridor is located outside of the 55-dB noise contours presented in the airport Master Plan. People who could potentially be exposed to noise from the airport would be construction workers in the temporary work areas. Noise from periodic aircraft operations would be largely masked by the noise of construction equipment, and the impact would be less than significant.

F) For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project corridor to excessive noise levels?

There are no private airstrips within 5 miles of the project corridor. The closest private airstrip is located at Monterey Bay Academy in La Selva Beach, approximately 5.5 miles southwest of Green Valley Substation. No impact would occur.

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3.13 POPULATION AND HOUSING

3.13.1 Environmental Setting

Population

The population of Santa Cruz County was estimated to be 265,981 as of January 1, 2012 (CDOF 2012a). In 2010, the estimated population of the County accounted for approximately 0.7 percent of California's estimated total population of thirty-eight million. The population of Santa Cruz County has grown an average of 0.32 percent annually between the years 2000 and 2011 (CDOF 2011, CDOF 2012b), with a net increase of 8,955 people during this eleven-year period, which represents a 3.5 percent increase in population.

Table 3.13-1 presents projected County population growth at five-year intervals between 2015 and 2050.

Table 3.13-1: Population Growth Projections for Santa Cruz County

	2015	2020	2025	2030	2035	2040	2045	2050
Population	266,526	270,776	274,864	278,008	279,711	281,053	281,844	283,108
Percent Growth	1.29	1.59	1.51	1.14	0.61	0.48	0.28	0.45

Source: CDOF 2012c

Housing

Santa Cruz County has an estimated 104,642 housing units, with an average of 2.68 persons per household, and a vacancy rate of approximately 9.7 percent in 2012 (CDOF 2012d). The majority of housing units are detached single-family homes, comprising approximately 63 percent of all housing units in the County. Approximately 766 residences are located within 600 feet of the project.

More than seventy hotels, motels, and bed-and-breakfasts are located in Santa Cruz County. The nearest temporary housing to the project corridor, Comfort Inn Watsonville Hotel (with forty-one guest rooms), is located approximately 1.3 miles southwest of the intersection of Onyx Drive and Celia Drive.

3.13.2 Environmental Impacts and Assessment

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 (*e.g.*, by proposing new homes and businesses) or indirectly (*e.g.*, through extension of roads or other 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 proposed project would not include construction of new homes or businesses, land use changes, or infrastructure extensions that would directly induce substantial population growth in the area.

Project construction also would not indirectly induce substantial population growth. During peak construction periods, an estimated seventy-five workers are anticipated to be working on the proposed project at any given time. The majority of the project crew members would commute from surrounding areas and are expected to primarily be local residents. There would be no impact.

Operation and Maintenance

The proposed project includes adding a new 115-kilovolt transmission circuit and would therefore increase capacity. Since the time the original system was designed in the 1970s, winter demand has increased by 60 percent, and the existing system is now inadequate to reliably serve the electrical needs of the area. To meet the current growth trend and demand over the next twenty years, the new circuit has been designed to increase capacity and reliability. It is not anticipated to indirectly or substantially induce population growth.

Operation and maintenance of the new circuit would be performed by the existing local Pacific Gas & Electric Company workforce, and would not induce substantial population growth. Current operation and maintenance activities are not anticipated to change significantly as a result of the proposed project; therefore, no additional personnel would be hired to perform operation and maintenance work. There would be no impact.

B), C) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?

Project construction and operation would primarily be conducted within existing power line rights-of-way (ROW) and along existing access roads. Houses located adjacent to the ROW would not need to be relocated to accommodate project construction or operation. No impact would occur.

The proposed project includes the acquisition of additional ROW in several locations along the Northern Alignment and the Cox-Freedom Segment; however, the needed ROW is entirely within existing utility setbacks and, therefore, would not impact or result in the displacement of existing housing.

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3.14 PUBLIC SERVICES

3.14.1 Environmental Setting

Fire Protection and Emergency Services

Fire protection and emergency services across the project corridor are provided by the Santa Cruz County Fire Department (SCCFD), the Aptos/La Selva Fire Protection District (ALSFPD), and the Pajaro Valley Fire Protection District (PVFPD). The County of Santa Cruz also contracts with California Department of Forestry and Fire Protection (CAL FIRE) to provide fire protection services for the project corridor. These include the supervision of volunteer fire companies, training and education, fire prevention services, plans check, and inspection.

SCCFD is a combination paid and volunteer department that also provides basic life support emergency medical services and typically responds to emergencies within fifteen minutes.

ALSFPD serves a 17-square-mile area with a resident population of about 22,000 (ALSFPD 2012). District headquarters are located at 6934 Soquel Drive in the unincorporated community of Aptos, approximately 3 miles west of Rob Roy Substation. The district has three fire stations and provides emergency medical services as well as fire prevention, training, and support services. The Aptos/La Selva Fire Protection District's average response time is approximately five to six minutes.

PVFPD contracts with the City of Watsonville Fire Department to provide emergency services in the former Freedom Fire District, which includes lands designated as Local Responsibility Areas and State Responsibility Areas. The District serves a 52-square-mile rural area of the County with a resident population of about 18,000, including unincorporated areas adjacent to the City of Watsonville (PVFPD 2012). PVFPD has one fire station and also provides basic life support emergency medical services with support from an outside, private provider.

The fire stations closest to the project corridor are shown on Figure 3.14-1 and include the following:

- Corralitos Fire Station in Corralitos, operated by SCCFD, located approximately 0.5 mile east of the corridor
- Pajaro Valley Fire Station in Watsonville, operated by PVFPD, located approximately 1.1 miles northeast of the project corridor
- Rio Del Mar Fire Station, operated by ALSFPD, located approximately 1.2 miles southwest of Rob Roy Substation

As discussed in Section 3.8: Hazards and Hazardous Materials, Santa Cruz County Office of Emergency Services (OES) is responsible for countywide emergency planning and preparation. The OES assesses major emergency threats to the Santa Cruz Operational Area, including wildland fires, floods, earthquakes, tsunami, dam failure, and civil disturbances, and

Figure 3.14-1: Public Services in the Project Corridor



coordinates with other emergency management partners to allocate resources and obtain support services. The OES is responsible for making all necessary notifications to County departments and personnel, the Santa Cruz Operational Area member jurisdictions, and the Coastal Region of the California Governor's Office of Emergency Services. The OES disseminates warnings, emergency public information, and instructions to the citizens of the County, and conducts evacuations and/or rescue operations.

Santa Cruz Regional 9-1-1, a division of the County Health Services Agency Public Health Department, provides public safety and 9-1-1 dispatch services for the County of Santa Cruz and the cities of Santa Cruz, Watsonville, and Capitola.

Police Services

The Santa Cruz County Sherriff's Office provides a variety of law enforcement services for the County, including the project corridor. The Sheriff's Office average response time for high-priority calls is under nine minutes. The nearest service centers to the project corridor are the South County Service Center, located at 790 Green Valley Road in Watsonville (approximately 0.1 miles north of the project corridor), and the Aptos Service Center, located at 19D Rancho Del Mar Shopping Center in Aptos (approximately 2.2 miles west of Rob Roy Substation).

The nearest city police department is the Watsonville Police Department, which serves the City of Watsonville and is located approximately 3 miles south of the project corridor. The Watsonville Police Department's average response time is under four minutes for high-priority calls (Applied Survey Research 2011). The Capitola Police Department, which serves the City of Capitola, is located approximately 4.8 miles southwest of Rob Roy Substation. The Capitola Police Department's response time is generally under four minutes for high-priority calls (Applied Survey Research 2011).

Hospitals

Santa Cruz County has two emergency receiving hospitals: Dominican Hospital, located at 1555 Soquel Drive in Santa Cruz, and Watsonville Community Hospital, located at 75 Nielson Street in Watsonville. Watsonville Community Hospital is the nearest hospital to the project corridor, and is located approximately 2.5 miles southwest of the project corridor. Dominican Hospital is located approximately 6.8 miles west of Rob Roy Substation.

Schools

The project corridor is located within the Pajaro Valley Unified School District (PVUSD), which consists of sixteen elementary schools, nine secondary schools, five charter schools, and four alternative education schools (PVUSD 2012).

The closest schools to the project corridor are Aptos High School, located 0.2 mile southeast of Rob Roy Substation, and Bradley Elementary School, located 0.2 miles south of the project corridor. Other schools in the project corridor vicinity include Amesti Elementary School in Watsonville, 0.5 miles southwest of the project corridor, and Aptos Junior High School in Aptos, 0.8 miles west-southwest of Rob Roy Substation.

Parks

The southern boundary of the approximately 10,000-acre Forest of Nisene Marks State Park is located an estimated 1.2 miles west of the Cox-Freedom Segment. The park is managed by the California Department of Parks and Recreation.

Several other parks are located near or within the project corridor. Additional information regarding specific parks is presented in Section 3.15: Recreation. One park, Pinto Lake County Park, would be crossed by a portion of the Northern Alignment, and would also include pole installation within its boundaries.

Other Services

The Freedom Branch of the Watsonville Public Library is located at 2021 Freedom Boulevard in the unincorporated community of Freedom, approximately 1 mile south of the nearest pole of the Northern Alignment. The Corralitos Cultural Center, an art gallery and performing arts venue, is located approximately 0.4 mile northeast of the nearest pole in Corralitos.

3.14.2 Applicant Proposed Measure

PG&E proposed to implement measures that would reduce environmental impacts. The following relevant APM is considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include this APM as part of the project, and PG&E would have to adhere to the APM. The APM that is applicable to the public services analysis is shown in Table 3.14-1.

Table 3.14-1: Applicant Proposed Measure for Public Services

APM Number	Requirements
APM PS-01. Coordinate Road Closures with Emergency Service Providers.	At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers in the project vicinity, including, but not limited to, the Santa Cruz County Fire Department, Aptos/La Selva Fire Protection District, Santa Cruz County Sheriff's Office, and Watsonville Police Department. PG&E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.

3.14.3 Environmental Impacts and Assessment

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, or the 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, or the 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?

Construction

There would be an increased risk of fires in the project corridor as a result of construction personnel smoking and equipment that could spark and ignite a wildfire. Fire risk would be minimized because smoking during fire season would be prohibited per APM HAZ-03. Construction crew trucks and equipment would be outfitted with standard fire suppression equipment (*i.e.,* standard round point shovel and fire extinguisher) per APM HAZ-04.

The proposed project would not require additional police services. No additional fire protection or police protection facilities would need to be constructed as a result of project construction.

Emergency access routes in the project corridor could be affected by project construction. Temporary road or lane closures may be necessary during project construction to ensure safety

of the public and workers. These closures are expected to be brief (*i.e.*, under fifteen minutes in duration). The proposed project would cross roadways in about two dozen areas, which may result in disruption of traffic flow during specific construction activities (*e.g.*, conductor stringing across roadways, installation of crossing structures, or delivery of equipment and materials to work areas).

Project construction would not impair implementation of or physically interfere with an adopted emergency response or evacuation plan, and would occur over a relatively short period of time (up to 15 to 18 months). Emergency service providers would be coordinated at least twenty-four hours prior to road or lane closures in accordance with APM PS-01. In the event of an emergency requiring evacuation, Pacific Gas & Electric Company (PG&E) personnel would ensure all evacuation routes are open and accessible. Impacts to emergency access are expected to be less than significant.

The proposed project would not include construction of new homes or businesses or land use changes that would directly induce substantial population growth in the area. The proposed project includes the addition of a second 115-kilovolt circuit, which increases the electrical capacity in the region. The objective of the increase, however, is to address the needs of the existing growth and to improve reliability. It is not expected to indirectly cause population growth that would in turn require construction of new public service facilities. The proposed project would require an estimated maximum of 75 construction workers, vendors, and environmental monitors at any one time. Construction workers would be drawn from the local area or commute from nearby cities; construction workers and their families are, therefore, not expected to relocate to the area. Construction workers would not introduce additional schoolchildren to area schools requiring expansion of schools or create a need for new parks. As discussed in Section 3.15: Recreation, temporary, partial closure of all or a portion of Pinto Lake County Park may result in increased use of nearby parks; however, closures would be limited to a few days and would be coordinated with the County. Any increase in use of nearby recreational facilities during this time would be minimal. The construction phase is relatively short in duration (up to 15 to 18 months) and the local workforce would be sufficient to complete the project. Project construction would, therefore, have no impact on schools, parks, and other government facilities.

Operation and Maintenance

Operation and maintenance of the rebuilt power line would be performed by the existing local PG&E workforce and would not induce substantial population growth beyond the current growth trend. Current operation and maintenance activities are not anticipated to change significantly as a result of the proposed project; therefore, no additional personnel would be hired to perform operation and maintenance work. There would be no need for additional government services or facilities. If maintenance activity extends into roadways, the roadways would remain open to emergency vehicles at all times. In the event of an emergency requiring evacuation, PG&E personnel would ensure all evacuation routes are open and accessible for public use. No impact would occur to government facilities as a result of project operation and maintenance.

3.15 RECREATION

3.15.1 Environmental Setting

Santa Cruz County includes 14 state parks and beaches; dozens of local parks, beaches, and preserves; and a national marine sanctuary. The County is home to California's oldest state park, Big Basin Redwoods State Park, which was established in 1902 (SCCCVC 2012).

Six County parks and one city park (City of Watsonville) are located within approximately 1 mile of the proposed project corridor. The southern boundary of the approximately 10,000-acre Forest of Nisene Marks State Park is located an estimated 1.2 miles west of the Cox-Freedom Segment. The park is managed by the California Department of Parks and Recreation. Other recreational facilities in the area include Spring Hills Golf Course, approximately 1 mile north of the project corridor, outside the Watsonville city limits, and Seascape Golf Club, approximately 2 miles southwest of Rob Roy Substation, near the coast in the community of Aptos. Table 3.15-1 provides a summary of the parks in the project corridor. Figure 3.15-1 shows the locations of the parks and other recreational features relative to the project corridor.

The project corridor and the existing power line alignment extend through Pinto Lake County Park. This part of the park includes nature trails, playgrounds, picnic areas, soccer fields, two pavilions with barbecues, a small baseball field, and a disc golf course. The existing power line alignment spans some of these features, but does not span the soccer field, parking lot, or any of the structures in the park. The power line alignment does not directly pass through any other parks or recreational facilities.

Table 3.15-1: Parks in the Project Corridor Vicinity

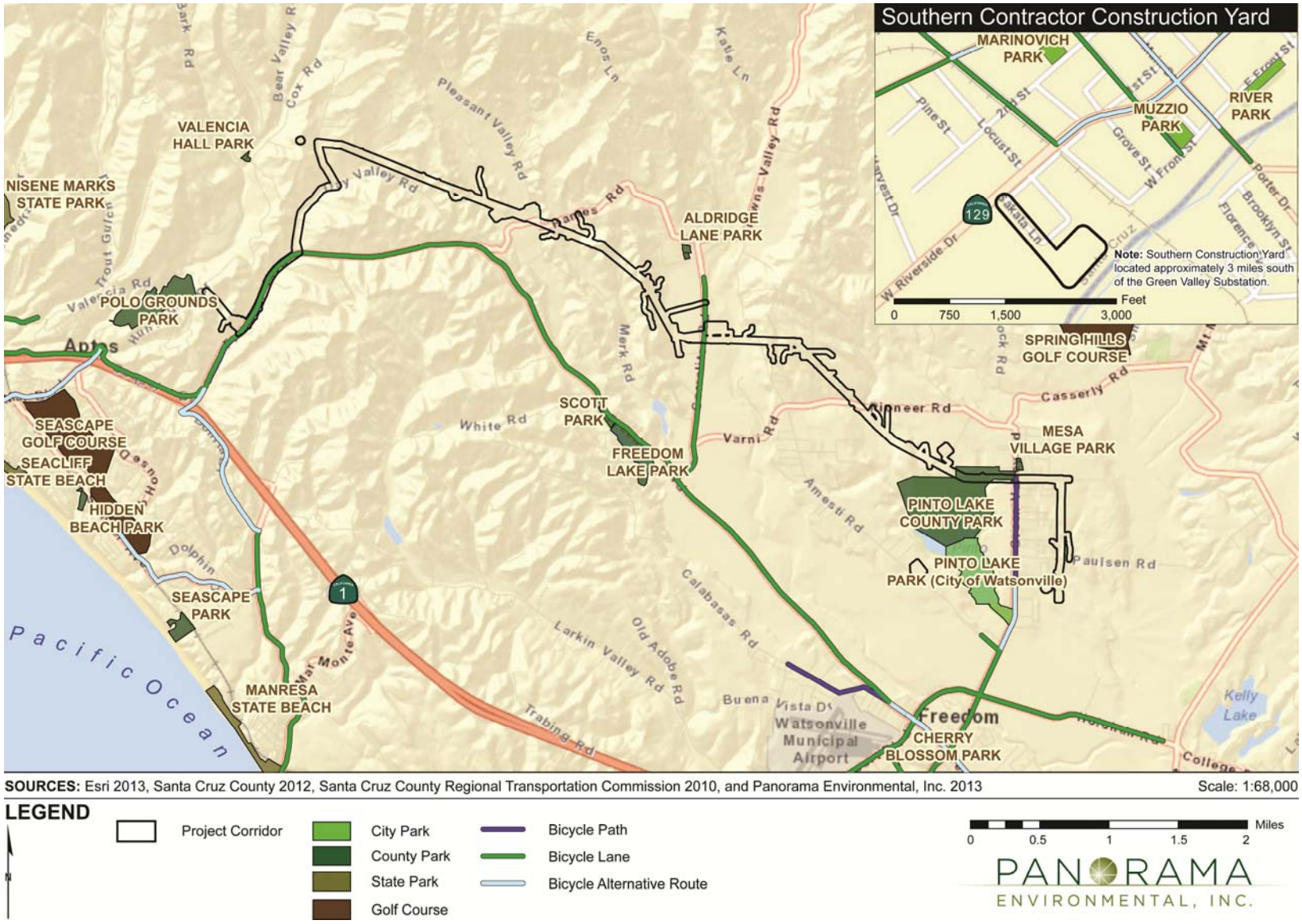
Park	Location	Features
Pinto Lake County Park	757 Green Valley Road, Watsonville	• Lake with fishing pier • Nature trails • Playground • Picnic areas • Soccer fields • Pavilions with barbecues • Small baseball field • Disc golf course
Mesa Village Park	790 Green Valley Road, Watsonville	• Play area • Basketball courts • Lawn • Picnic tables
Polo Grounds Park	2255 Huntington Avenue, Aptos	• Three baseball diamonds • Three soccer fields • Open space
Valencia Hall Park	2555 Valencia Road, Aptos	• Hall for weddings, parties, and meetings

Table 3.15-1 (*Continued*): Parks in the Project Corridor Vicinity

Park	Park	Park
Aldridge Lane Park	20 Aldridge Lane, Corralitos	• Horse arena • Basketball court • Tennis court • Volleyball court • Playground • Horseshoe pit
Scott Park (Including Freedom Lake Park)	2901 and 3101 Freedom Boulevard, Watsonville	• Trails • Play area • Picnic tables • Barbecues
Pinto Lake Park (City Park, separate from Pinto Lake County Park)	451 Green Valley Road, Watsonville	• Boat launch ramp • RV camping • Picnic areas/pavilion area • Softball diamond • Volleyball court • Horseshoe pit • Playground • Pedal and row boats • Fishing • Bird watching

Source: PG&E 2012

Figure 3.15-1: Recreational Facilities in the Project Corridor and Vicinity



3.15.2 Environmental Impacts and Assessment

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
A) 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) 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

Several recreational facilities are located in the vicinity of the project corridor. Pinto Lake County Park would be spanned by a new power line. The proposed project would also include installation of approximately four new tubular steel poles (TSPs) in the northern portion of the park. Within the park, as with other portions of the alignment, the rebuilt power line would generally occupy the same footprint as the existing power line within the existing power line right-of-way (ROW). The project would require a maximum of seventy-five construction workers at any one time. Construction workers would be drawn from the local area or commute from nearby cities. The construction phase is short in duration (up to 15 to 18 months) and the local Pacific Gas and Electric (PG&E) workforce would be sufficient to complete the proposed project. Project construction would not result in an increase in the use of these parks or other recreational facilities. The proposed project would be constructed to increase system reliability and prevent potential large-scale service interruptions if there are overlapping outages in the existing local electricity supply system.

Use of Pinto Lake County Park could be temporarily restricted during construction. Pole installation in the park would require temporary closure around each pole during excavation, pouring of concrete, and installation of poles for approximately ten days. A concrete foundation would be poured for TSPs after excavation and installation of a rebar cage. Once the foundation is poured and finished, construction personnel would install orange barricade fencing around the foundation while the concrete cures, and then return to install the poles. During this interim period while concrete cures, recreational users would not have access to the isolated concrete foundation locations, but would have access to the rest of the park. For safety purposes, PG&E would coordinate with County Parks for lane closures and isolated areas where construction is

occurring. The park would be closed during conductor stringing, which would take about two days.

Park closures would affect park use. Disruption of special events could significantly affect park users. Mitigation Measure Recreation-1 would require coordination with the Parks Department to avoid disruption of scheduled special events. All construction areas would be cleaned up after completion of work and restored to preexisting conditions such that deterioration of the park would not occur. Impacts would be less than significant.

> **Mitigation Measure Recreation-1:** PG&E shall coordinate with Santa Cruz County Parks Department staff at least 4 weeks in advance of construction within Pinto Lake County Park to ensure no pre-scheduled special events will be interrupted by construction activities.

Temporary, partial closure of Pinto Lake County Park may result in increased use of nearby parks; however, closures would be limited to a few days. Any increase in use of nearby recreational facilities during this time would be minimal and would not result in significant accelerated deterioration of this or any other existing park or recreational facility.

Operation and Maintenance

Operation and maintenance activities for the rebuilt power line would be similar in scope to existing operation and maintenance activities. The rebuilt power line would generally occupy the same footprint as the existing power line within the existing power line ROW. Impacts would be less than significant.

B) Would 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 would not include the construction or expansion of any recreational facilities. No impact would occur.

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3.16 TRANSPORTATION AND TRAFFIC

3.16.1 Environmental Setting

Transportation System

Highways in the Project Vicinity

The closest interstate highway to the project corridor is U.S. Highway 101 (US 101), approximately 11 miles southeast of the project corridor. Two other major highways traverse the County. One of these is State Route (SR) 1, which runs north-south near the coastline and is approximately 0.7 miles southwest of Rob Roy Substation and 2.8 miles southwest of Green Valley Substation. The other is SR-17, which runs northeast through the Santa Cruz Mountains to the Santa Clara Valley and is approximately 8.4 miles west of Rob Roy Substation. Secondary highways SR-152 and SR-129, located approximately 1.3 miles and 2.9 miles southeast of Green Valley Substation, respectively, are also located in the project corridor vicinity.

Local Roadways in the Project Vicinity

The local transportation network for the project corridor vicinity mainly consists of two-lane city- and County-maintained roads. Roadways in the project corridor that would be accessed for project construction and spanned by the alignment are shown in Figures 2.4-1 through 2.4-15. Several of these roads (e.g., Cox Road), are narrow and do not have bike lanes or shoulders that would accommodate bicyclists or pedestrians safely in addition to vehicle traffic. Many existing poles along the current alignment are also immediately adjacent to the road pavement, posing a potential safety hazard to drivers, bicyclists, and pedestrians using the roads.

Traffic Volumes and Levels of Service

Definition of Level of Service

Roadways and intersections are rated at various levels of service (LOS). 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 of LOS are presented in Table 3.16-1. LOS can be estimated based on a road's traffic volume-to-road capacity (v/c) ratio and the average delay experienced by vehicles at an intersection.

Santa Cruz County LOS Standards

The Santa Cruz County General Plan states that the objective for proposed development projects is LOS C; however, LOS D may be acceptable if LOS C is not achievable for various reasons (*e.g.*, costs, ROW requirements, and environmental impacts) (1994). For any proposed development projects that would add traffic at intersections or on highway segments already at LOS E or F, these would require mitigation for any traffic volume resulting in a 1 percent increase in the volume/capacity ratio of the sum of all critical movements (Santa Cruz County 1994). Projects are denied until additional capacity is provided or where an overriding finding of public necessity and or benefit is provided (Santa Cruz County 1994).

Table 3.16-1: Level of Service Criteria for Roadways and Unsignalized Intersections			
LOS	**v/c**	**Traffic Flow Characteristics**	**Delay at Intersection (seconds/vehicle)**
A	0.00 – 0.60	Free flow; insignificant delays	≤10
B	0.61 – 0.70	Stable operation; minimal delays	10.1 – 15.0
C	0.71 – 0.80	Stable operation; acceptable delays	15.1 – 25.0
D	0.81 – 0.90	Approaching unstable flow; queues develop rapidly (no excessive delays)	25.1 – 35.0
E	0.91 – 1.00	Unstable operation; significant delays	35.1 – 50.0
F	>1.00	Forced flow; jammed conditions	>50.0

Source: City of Aliso Viejo 2004

The Santa Cruz County Board of Supervisors designated the Santa Cruz County Regional Transportation Commission (SCCRTC) as the Congestion Management Program Agency for the County. The SCCRTC funds and implements transportation projects and services in the County. The 2010 Santa Cruz County Regional Transportation Plan (RTP) guides short- and long-range transportation planning and project implementation. The RTP includes goals and policies to preserve and maintain existing transportation systems, improve multi-nodal systems, coordinate land use and transportation decisions, ensure transportation systems complement the natural environment, make efficient use of limited transportation funds, and include public input on transportation plans and funding. The RTP emphasizes support of projects and actions that minimize congestion by reducing weekday peak-hour congestion and/or improving safety (SCCRTC 2010a).

LOS in the Project Corridor

The available LOS and average daily traffic (ADT) volume in the project corridor for the various access roads is presented in Table 3.16-2.

Alternative Transportation

Bicycle Facilities

Bikeways in the project corridor are defined by the Santa Cruz County Regional Transportation Commission (SCCRTC 2010b). The following bikeways are present in the project corridor vicinity. These bikeways are shown in Figure 3.15-1:

- Freedom Boulevard:
  - bicycle lane from SR-1 to Airport Boulevard
  - bicycle path between Sabina Way and Valencia Road
- Corralitos Road:
  - bicycle lane from Freedom Boulevard to Browns Valley Road
- Green Valley Road:
  - bicycle lane between Amesti Road and SR-1

  - bicycle path between Arroyo Drive and Hastings Lane
  - alternate bicycle route between Hastings Lane and Amesti Road
- Airport Boulevard:
  - bicycle lane between SR-1 and East Lake Avenue

Table 3.16-2: Public Access Roadways in the Project Corridor with Available LOS and ADT Volume

Roadway	Functional Classification(s)	Number of Lanes	ADT Volume	LOS
SR-1	Freeway; Principal Arterial	4	72,500	C to F
SR-17	Principal Arterial	4	65,000	C to D
Airport Boulevard	Freeway; Principal Arterial	4	13,887	E to F
Aldridge Lane	Local	2	—	—
Amesti Road	Major Collector	2	4,219	A
Blake Avenue	Local	2	—	—
Blakeridge Lane	Local	2	—	—
Blakeview Road	Local	2	—	—
Celia Drive	Local	2	—	—
Corralitos Road	Minor Collector	2	6,284	A
Cox Road	Collector	2	—	—
Crow Avenue	Local	2	—	—
Dalton Lane	Local	2	—	—
Day Valley Road	Collector	2	—	—
Day Valley View	Collector	2	—	—
Downing Drive	Local	2	—	—
Freedom Boulevard	Collector	2 to 4	26,860	D
Green Valley Road	Minor Arterial; Major Collector	2 to 4	20,867	A
Hames Hollow	Principal Arterial; Minor Arterial; Major Collector	2	—	—
Hames Road	Local	2	1,044	A
Harrison Way	Major Collector; Minor Collector	2	—	—
Holohan Road	Local	2	17,036	C
Jingle Lane	Major Collector	2	—	—

Table 3.16-2 (*Continued*): Public Access Roadways in the Project Corridor with Available LOS and ADT Volume

Roadway	Functional Classification(s)	Number of Lanes	ADT Volume	LOS
Kiewer Lane	Local	2	—	—
Lewis Road	Local	2	—	—
Main Street / SR-152	Local	2 to 4	31,306	C
McDonald Road	Principal Arterial	2	2,563	A
Meadow Road	Major Collector	2	—	—
Melody Lane	Local	2	—	—
Minto Road	Local	2	—	—
Onyx Drive	Local	2	—	—
Paulsen Road	Local	2	1,737	A
Pine Forest Drive	Local	2	—	—
Pioneer Road	Local	2	—	A
Pioneer View Road	Local	2	—	—
Pleasant Way Road	Major Collector	2	—	—
Potter Road	Local	2	—	—
Quail Run	Local	2	—	—
Railroad Avenue	Local	2	—	—
Rancho Todos Santos Road	Local	2	—	—
Riverside Drive / SR-129	Principal Arterial; Minor Arterial	2 to 4	18,000	A
Sakata Lane	Local	2	—	—
Senda Del Valle	Local	2	—	—
Skylark Lane	Local	2	—	—
Trembley Lane	Local	2	—	—
Valencia Road	Local	2	—	—

Note:
Roadways with unavailable ADT volume data are left blank.

Sources: Caltrans 2011a, Caltrans 2011b, Santa Cruz County Department of Public Works 2009, PG&E 2012

Transit and Rail Services

Public transportation in the County is provided by the Santa Cruz Metropolitan Transit District (METRO). The "Highway 17 Express" (jointly operated by METRO and the Santa Clara Valley Transportation Authority) provides bus service between Santa Cruz and San Jose, with Greyhound Lines providing bus service to the surrounding regions. METRO operates three bus routes in the project corridor vicinity (METRO 2012), which include:

- ***Route 71—Santa Cruz/Watsonville:*** provides service Monday through Sunday between Watsonville, Freedom, Day Valley, Aptos, Live Oak, and Santa Cruz, and runs along Green Valley Road, Freedom Boulevard, Soquel Drive, and Water Street.
- ***Route 72—Corralitos:*** provides service Monday through Friday between Watsonville, Freedom, Amesti, and Corralitos, and runs along Main Street, Green Valley Road, Freedom Boulevard, Airport Boulevard, Amesti Road, Varni Road, Corralitos Road, and Pioneer Road.
- ***Route 75—Green Valley:*** provides service Monday through Sunday between Watsonville, Freedom, and Amesti, and runs along Main Street, Green Valley Road, Loma Prieta Avenue, Airport Boulevard, Freedom Boulevard, Arroyo Drive, Mark Avenue, Mesa Verde Drive, Casserly Road, and Wheelock Road.

No commuter or freight rails are located near the project corridor. The nearest railway to the project site is the Santa Cruz Branch Line of the Union Pacific Railroad Coast Line, which is approximately 1.6 miles to the southwest. This railway runs approximately 32 miles from Watsonville Junction in Pajaro along the coast to Davenport. SCCRTC recently acquired the line and an adjacent bicycle/pedestrian path for future transportation uses.

Air Traffic

The nearest major airport in the region is Mineta San José International Airport, located approximately 25 miles north-northwest of the project corridor. Within the project corridor vicinity, the Watsonville Municipal Airport is located approximately 1.7 miles southwest of Green Valley Substation and is the only public use airport in the County. There are no private airstrips within 5 miles of the project corridor.

The 291-acre Watsonville Municipal Airport has two runways (one 4,500 feet long and another 4,000 feet long) serving single- and twin-engine aircraft and helicopters, as well as turboprops and turbine-powered business jets. The airport has an additional 53 non-contiguous acres of land for clear-zone protection (Watsonville Municipal Airport 2002). Santa Cruz County does not have an Airport Land Use Commission; accordingly, no formal Airport Land Use Plan has been formulated for Watsonville Municipal Airport.

Additional private airports in the County include the Monterey Bay Academy Airport near Watsonville, Las Trancas Airport near Davenport, and Bonny Doon Village Airport near Santa Cruz. Helipads are located at Watsonville Community Hospital, Dominican Santa Cruz Hospital in Santa Cruz, and at the Alta Vista Helipad, located about 0.5 miles south-southeast of Rob Roy Substation.

Emergency Services Access

Multiple emergency service providers are located in the project corridor. Emergency service providers that are likely to use the proposed access road network consist of the following:

- Watsonville Community Hospital and associated ambulance services
- Pajaro Valley Fire Station
- Corralitos Fire Station
- Watsonville Fire Department
- Santa Cruz County Sheriff
- City of Watsonville Police
- California Highway Patrol

3.16.2 Applicant Proposed Measures

PG&E proposed to implement measures that would reduce environmental impacts. The following relevant APMs are considered part of the proposed project when determining whether impacts would be significant and thus need to be mitigated. CPUC approval would include these APMs as part of the project, and PG&E would have to adhere to the APMs as well as the identified mitigation measure. The APMs that are applicable to the transportation and traffic analysis are shown in Table 3.16-3.

Table 3.16-3: Applicant Proposed Measures for Transportation and Traffic Impacts

APM Number	Requirements
APM TRA-01. Install Reflective Bollards.	Reflective bollards will be installed around the base of TSP foundations to increase vehicle safety along Dalton Lane and at the corner of McDonald Road and Freedom Boulevard.
APM TRA-02. Coordinate Work Within Vicinity of Bus Stop with Bus Service Providers.	At least 2 weeks prior to work within 1,000 feet of any Santa Cruz Metropolitan Transit District (METRO) bus stop, PG&E will coordinate with the METRO to inform them of the project's potential to impact the bus stop. PG&E will provide the METRO with information regarding the location of the bus stop; the anticipated date, time, and duration of construction activities; and a telephone contact number.

3.16.3 Environmental Impacts and Assessment

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 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?

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?

Construction

LOS Standards and Congestion Policies

Santa Cruz County has policies that traffic congestion should not drop below LOS D during the weekday peak hour, or increase ADT volume greater than 1 percent for roads or highways with an LOS already at E or F for new development projects. The Santa Cruz County Regional Transportation Committee oversees the RTP, which addresses congestion management. The RTP does not set specific standards for LOS or travel demand but emphasizes projects and policies that would minimize peak-hour traffic in the most congested areas.

Construction of the proposed project would cause temporary increases in traffic on highways and County roads. The estimated daily construction vehicle traffic by construction period is shown in Table 3.16-4, and temporary traffic increases for the peak and non-peak construction periods are shown in Table 3.16-5.

Temporary traffic impacts listed in Table 3.16-5 were estimated through a review of local and regional demographics, freeway access, project staging areas, and likely construction patterns.

Table 3.16-4: Estimated Daily Construction Traffic by Construction Period

Type of Vehicle	Range of Trips	Non-peak Construction Period Vehicle Trips per Day	Peak Construction Period Vehicle Trips per Day
Approximate Duration of Construction Period	**N/A**	**12.7**	**2.3**
Personal Vehicles	13–75	61	75
Large Supply Trucks and Work Vehicles	6–40	32	40
Miscellaneous Deliveries and Inspections	10	10	10
Total Daily Trips	29–125	103	125

Sources: PG&E 2012

Table 3.16-5: Estimated Temporary Construction Impacts to LOS and ADT Volume

Roadway Segment	Existing LOS	Existing ADT Volume	Temporary Increase in ADT During Non-Peak Period	Temporary Increase in ADT During Peak Period	Estimated Change in LOS
SR-1 *South of Freedom Boulevard*	C to F	72,500	+0.09%	+0.11%	None
SR-17 *Interchange at Ocean Street to Granite Creek Road*	C to D	65,000	+0.10%	+0.13%	None
Airport Boulevard *North of Freedom Boulevard*	E to F	13,887	+0.49%	+0.60%	None
Amesti Road *West of Green Valley Road*	A	4,219	+1.6%	+2.0%	None
Corralitos Road *South of Hames Road*	A	6,284	+1.1%	+1.3%	None
Freedom Boulevard *East of SR-1 / Shadowmere Way*	D	26,860	+0.25%	+0.31%	None
Green Valley Road *South of Pioneer Road*	A	20,867	+0.33%	+0.40%	None
Hames Road *East of Freedom Boulevard*	A	1,044	+6.5%	+8.0%	None
Holohan Road *East of Green Valley Road*	C	17,036	+0.40%	+0.49%	None
Main Street / SR-152 *East of Green Valley Road*	C to E	31,306	+0.22%	+0.27%	None
McDonald Road *North of Freedom Boulevard*	A	2,563	+2.7%	+3.2%	None
Paulsen Road *East of Green Valley Road*	A	1,737	+3.9%	+4.8%	None
Riverside Drive / SR-129 *West of Main Street*	A	18,000	+0.38%	+0.46%	None

Note:
Only roads with available LOS categories or ADT volume were included in this table.

Sources: Caltrans 2011a, SCCRTC 2010a, Santa Cruz County Department of Public Works 2009, PG&E 2012

Based on these factors, two-thirds of employees accessing project construction sites would access the site from the north via SR-1 and area roadways roadways, and one-third of employees would access the site from the south and east via SR-1, SR-152, and SR-129. Employees would then access Freedom Boulevard (from the north or south) at the start of construction activities and travel north via McDonald Road, Cox Road, and then southeast through Hames Road, Corralitos Road, Pioneers Road, and Green Valley Road to the project's

terminus. Two-thirds of the peak and non-peak vehicle traffic is assumed to be the greatest likely traffic increase on area roads because a maximum of two-thirds of construction-related traffic would use the same access route to access the construction site. Therefore, two-thirds of the peak and non-peak vehicle daily traffic trips (83 trips and 68 trips, respectively) were added to existing ADT to calculate daily traffic impacts (Omni-Means 2012b).

The addition of traffic associated with construction would not change the LOS of any roadways with a LOS of D or better. Two roadways have a LOS of E or F: SR-1 and Airport Boulevard. Construction of the proposed project, however, would not cause increases in LOS of greater than 1 percent to these roadways and, therefore, the project would be in compliance with the County's policies. Construction would be temporary and given the small increases in traffic associated with construction traffic, the proposed project would not have any impact on the goals or policies of the County's RTP.

Temporary Impacts to LOS from Construction Activities

Temporary traffic delays could occur along the Northern Alignment and Cox-Freedom Segment ROWs, as well as along temporary work areas where poles and crossing points are located. Partial or complete lane closures and, if necessary, full roadway closures, could periodically occur for approximately 10 to 15 minutes during construction. Lane or road closures would take place at each power line crossing point (shown in Figures 2.4-1 through 2.4-15). The majority of temporary traffic delays are expected to occur along Freedom Boulevard, Cox Road, Dalton Lane, Day Valley Road, and McDonald Road during roadside pole and conductor installation. A segment of Cox Road East, approximately 200 feet south of the intersection of Cox Road and Leslie Lane, would be closed during various phases of construction for up to two hours at a time. Alternate access to Cox Road East would continue to be available through Cox Road West. To the extent feasible, construction crews would generally limit work that requires lane and road closures to low-volume traffic periods. Such work may be scheduled on weekend days, as necessary, when traffic volume is lower; however, temporary but potentially significant impacts to LOS and circulation could still occur. Mitigation Measure Traffic-1 would be implemented, which requires PG&E to develop and implement a Traffic Management Plan (TMP). Impacts to LOS and circulation would be less than significant with implementation of Mitigation Measure Traffic-1.

Pacific Gas & Electric (PG&E) would obtain an encroachment permit from Santa Cruz County and implement County regulations regarding traffic control and road closures, which includes implementation of warning signs, lights, and barricades; minimum interference with traffic; and cleanup of the ROW upon completion of work (PG&E 2012).

> ***Mitigation Measure Traffic-1:*** PG&E shall develop a project-specific Transportation Management Plan (TMP) to be implemented during construction, which shall be submitted to the CPUC for review at least 30 days prior to construction. The TMP shall conform to the California Joint Utility Traffic Control Committee's *Work Area Protection and Traffic Control Manual*. The TMP shall include the following:

- Standard safety practices, including installation of appropriate barriers between work zones and transportation facilities, placement of appropriate signage, and use of traffic control devices.
- Flaggers and/or signage shall be used to guide vehicles through or around construction zones using proper construction techniques.
- Provision that all equipment and materials shall be stored in designated work areas in a manner that minimizes traffic obstructions and maximizes sign visibility.
- Acceptable vehicle speeds on project roadways. Vehicle speeds shall be limited to safe levels as appropriate for all roads, including access roads and overland routes without posted speed limits.
- Routing of trucks to avoid minor roads, where possible, to reduce congestion and potential asphalt damage.
- No lane or road closures that would lower vehicle capacity of a road already at LOS D or lower (e.g., Airport Boulevard and Freedom Boulevard) during peak-hour traffic, or as determined through consultation with Santa Cruz County.

Note that if encroachment permits include all of the information required in the TMP as identified in this measure, a copy of these permits may be substituted for a TMP. Encroachment permits must be provided to the CPUC 30 days prior to work in the area of the permit.

Operation and Maintenance

Operation and maintenance of project facilities would not impact traffic circulation in the project corridor. PG&E would conduct operations and maintenance work in the same manner as currently conducted. Operations and maintenance would have no impact to transportation circulation.

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 nearest airport to the project corridor is the Watsonville Municipal Airport, which is located approximately 1.7 miles southeast of the project corridor. The project corridor does not overlap with any part of the airport's airspace and is not subject to use limitations described in the airport's Master Plan. No structure built during construction would obstruct navigable airspace and exceed the 200 foot FAA notification requirement described in Title 14, Part 77 of the Code of Federal Regulations (CFR).

Helicopters may be used during pole installation, pole removal, or conductor installation activities, as needed. Helicopters used during project construction would typically transport personnel, equipment, and materials between staging areas/landing zones and work sites when challenging terrain or other obstructions limit access by ground based vehicles and equipment.

Helicopters would be stored and refueled at designated project landing zones (shown in Figures 2.4-1 through 2.4-15).

PG&E would coordinate with air traffic control and applicable agencies before helicopters are used. Flight plans are required by the FAA for flights over congested areas. If the flight patterns for the project meet the criteria for congested areas, a Lift Plan would be prepared. Visual Flight Rules (VFRs) govern the procedure for flights where the visibility, the ceiling, and the aircraft distance from clouds are equal to or greater than established minimums. For a pilot flying under VFRs, there is no proof of filing and no approval required. Impacts to air traffic patterns would be less than significant.

Operation and Maintenance
Operation and maintenance of project facilities may require periodic use of helicopters for aerial inspections of the power lines. PG&E currently uses helicopters for aerial inspections approximately once a year and does not anticipate a need for additional helicopter use. No other operations and maintenance activities have the potential to increase air traffic. Operations and maintenance impacts to air traffic would be less than significant because helicopter trips would not change from their current use during operations and maintenance activities and their use is limited.

D) Would the project substantially increase hazards due to a design feature or incompatible uses?

Construction
No permanent roads would be built for the proposed project and no modifications to the established roadways are expected. Temporary access roads would be constructed, graded, or cleared along the Northern Alignment. Use of these roads would be restricted to construction personnel and PG&E would coordinate construction activities with landowners to minimize hazards.

Construction activities could temporarily interfere with the normal function of the roadways and could increase traffic safety hazards, particularly along some of the narrow rural residential roads such as Cox Road. Implementation of Mitigation Measure Traffic-1 would reduce traffic safety hazards by requiring a plan that includes traffic control devices and creation of a barrier between traffic and project activities. Travel speeds along Cox Road are generally low due to the width and condition of the road. With implementation of traffic controls during construction, motorists, pedestrians, and bicyclists would be protected. Impacts would be less than significant.

Operation and Maintenance
PG&E would install all structures at the appropriate setback, as required by applicable encroachment permits. All new TSPs would be installed a minimum of 20 feet away from the pavement edge, so that they would not interfere with vehicle, bicycle, or pedestrian traffic on roads. PG&E would also implement APM TRA-01, which would require installation of

reflective bollards around the base of TSP foundations to increase vehicle safety along Dalton Lane and at the corner of McDonald Road and Freedom Boulevard.

Cox Road is a very narrow road with no safe pedestrian shoulders. The existing wooden distribution poles are located at the edge of the narrow road, which is an existing hazard to motorists and bicyclists. New wood poles C-73, C-74, and CD-81, which would be installed along Cox Road replacing existing poles, would be moved 5 feet back from the pavement edge for the purpose of safety. These setbacks would have a positive impact on safety in this portion of the road, giving pedestrians additional room to walk outside the road and providing additional clearance for motorists.

E) Would the project result in inadequate emergency access?

Construction
Project construction may temporarily impact emergency access during lane and road closures primarily on Freedom Boulevard, Cox Road, Dalton Lane, Day Valley Road, and McDonald Road. APM PS-01 states that PG&E would coordinate with all applicable emergency service providers in the project corridor vicinity at least 24 hours prior to any road closures. Impacts to emergency access from construction would be less than significant.

Operation and Maintenance
Operation and maintenance of project facilities would not conflict with emergency access. PG&E would conduct maintenance work in the same manner as it is currently conducted. No impact would occur.

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?

Construction
Temporary lane and road closures described previously have the potential to delay bus transportation for METRO bus routes 71, 72, and 75. These routes follow portions of project access roads or are spanned by project power lines. Route 71 would experience delays along Freedom Boulevard where the Cox-Freedom Segment is located between McDonald Road and Rob Roy Substation, near Shadowmere Way. Route 72 would experience delays at 3 crossing points near the intersections of Pioneer Road and Meadow Ridge Road, Green Valley Road and Dalton Lane, and Corralitos Road and Bradley Elementary. Route 75 would experience delays at Green Valley Road and Dalton Lane. Lane and road closures would occur at these locations intermittently throughout construction and would last approximately 10 to 15 minutes at a time.

Several METRO bus stops within 1,000 feet of work sites may be temporarily impacted during roadside work and associated lane and road closures. Bus stops for Route 72 and 75 at the intersection of Green Valley Road and Dalton Lane may be impacted for approximately 4 hours during installation of a crossing structure for a tubular steel pole (TSP) located at the intersection. These locations are shown in Table 3.16-6. Impacts would be temporary and

scheduled during non-peak hours, to the extent practicable. PG&E would implement APM TRA-02 to coordinate with METRO prior to beginning construction activities within 1,000 feet of bus stops that may impact bus transportation.

Temporary lane and road closures would impact bike lanes and paths along Freedom Boulevard, Corralitos Road, and Green Valley Road in the same capacity as roadway closures. Bike lanes and pathways would be temporarily closed for periods of approximately 10 to 15 minutes. Flaggers, cones, and signage would be used as required by the TMP and applicable encroachment permits. Closures would be conducted during non-peak hours, to the extent practicable.

Impacts to the public transportation system and bicycle facilities would be temporary and returned to current levels once construction is complete. Therefore, the impacts would be less than significant.

Operation and Maintenance

Operation and maintenance of project facilities would have no impact to public transit, bicycle, or pedestrian facilities. PG&E would conduct maintenance work in the same manner as it is currently conducted.

Table 3.16-6: Bus Stops within 1,000 Feet of Lane or Road Closures

METRO Route	Bus Stop ID	Nearest Intersection
71	1429	Freedom Boulevard and Valencia Road
	1430	Freedom Boulevard and Valencia Road
	1431	Freedom Boulevard and McDonald Road
	1432	Freedom Boulevard and McDonald Road
72	1056	Corralitos Road and Bradley Elementary
	1113	Green Valley Road and Dalton Lane
	1110	Green Valley Road and Klassen Lane
	2226	Green Valley Road and Klassen Lane
75	1110	Green Valley Road and Klassen Lane
	1111	Green Valley Road and Klassen Lane
	1112	Green Valley Road and Dalton Lane
	1113	Green Valley Road and Dalton Lane
	2226	Green Valley Road and Poultry Lane
	2334	Arroyo Drive and Mark Avenue
	2335	Hathaway Avenue and Mark Avenue

Source: METRO 2012

3.17 UTILITIES AND SERVICE SYSTEMS

3.17.1 Environmental Setting

Utilities

Cable and Telephone

Charter and Comcast Cable Company provide cable television, telephone, and internet service in the project corridor. Telephone service is provided by AT&T.

Electricity and Natural Gas

Pacific Gas and Electric Company (PG&E) provides gas and electric services to Santa Cruz County.

Water

Potable water is provided in the County by multiple water systems. Nearly all of the domestic water supply of the County is obtained from groundwater (80 percent) and the remainder is obtained from local surface water (20 percent). Potable water would be supplied to the project corridor by the City of Santa Cruz Municipal Utilities (SCMU), and water for construction activities would be provided by either the SCMU or the City of Santa Cruz Neary Lagoon Treatment Plant.

The project corridor is located in the Pajaro Valley Groundwater Basin, and a majority of the project corridor is located within the jurisdiction of two County water management districts: the Pajaro Valley Water Management Agency (PVWMA) and the Central Water District (CWD). The remaining portion of the project corridor is within the service area of the City of Watsonville Department of Public Works and Utilities (WDPW).

The PVWMA's service area includes the southernmost portion of Santa Cruz County and portions of northernmost Monterey County, with the northwest boundary of the agency's jurisdiction just northwest of the community of Corralitos (PVWMA 2012). The majority of the project alignment is in the PVWMA's service area. The PVWMA is a not a water provider, but is a management agency that develops supplemental supplies and manages aquifers within the agency boundaries for overdraft and seawater intrusion. The CWD serves approximately 2,700 customers in the unincorporated areas of Aptos in the foothills of the Santa Cruz Mountains, and obtains its water from five groundwater wells. Areas not served by the CWD and the WDPW obtain water from private groundwater wells, which are regulated by Santa Cruz County Environmental Health Services.

Water in the southern part of the project corridor, in and north of the City of Watsonville, is provided by the WDPW, which obtains its water from fourteen groundwater wells and eight reservoirs and serves 66,000 customers (WDPW 2012).

Service Systems

Stormwater

Many of the unincorporated communities within the County do not have municipal stormwater infrastructure. The natural hydrology of the watershed is used to convey stormwater runoff to receiving waters. Stormwater drainage and flood control in the project area is the responsibility of the Santa Cruz County Flood Control and Water Conservation District, a division of the Stormwater Management Section of the Santa Cruz County Department of Public Works. The City Department of Public Works oversees flood protection and stormwater management services within municipal boundaries in Watsonville.

The only stormwater drainage system in the project corridor is a system of roadside ditches and culverts on the east side of Freedom Boulevard between McDonald Road and Valencia Road. No municipal stormwater drainage facilities are located in the project corridor.

Sewer and Wastewater

Sanitary sewer wastewater treatment services in the County are supplied by various providers and public agencies. The two County sanitation districts that provide sanitary sewer services to the project corridor are the Santa Cruz County Sanitation District and the Freedom County Sanitation District.

Santa Cruz County Sanitation District manages about five to six million gallons of sewage per day, providing sewage collection, treatment, and disposal services to the communities of Live Oak, Capitola, Soquel, and Aptos. Sewage is transported to a wastewater treatment plant at Neary Lagoon that is owned and operated by the City of Santa Cruz. The plant treats about twelve million gallons of sewage each day (Santa Cruz County 2012).

Freedom County Sanitation District provides sewage collection, treatment, and disposal services to the community of Freedom, whose residents generate about 1.35 million gallons of sewage each day. Sewage is transported to the Beach Street wastewater treatment plant in Watsonville. The plant has the capacity to treat about 16.5 million gallons of sewage each day (Santa Cruz County 2012).

The portions of the project corridor that are not served by either of these two County sanitation districts are instead served by private septic tanks regulated by Santa Cruz County Environmental Health Services.

Solid Waste Disposal

Garbage and recycling collection in the project corridor is provided by Waste Management.

Santa Cruz County Recycling and Solid Waste Services operates and manages solid waste diversion and disposal in the unincorporated areas of the County. The agency operates the County's two solid waste facilities: Buena Vista Drive Sanitary Landfill, located approximately 4 miles south of the project corridor and west of Watsonville, and the Ben Lomond Transfer Station, located approximately 13.8 miles northwest of the project corridor in the San Lorenzo Valley (SCRSWS 2012). Buena Vista Landfill accepts an average of 350 tons of refuse daily. Ben

Lomond Transfer Station accepts 100 tons of refuse daily, which is then trucked to Monterey Peninsula Landfill and Recycling Facility in northern Monterey County for burial. Both solid waste disposal facilities accept Class III nonhazardous residential, commercial, and industrial waste, including construction and demolition waste and treated wood waste. Both locations also function as recycling facilities. Buena Vista Landfill also accepts dewatered sewage and low-level petroleum-contaminated soils (SCRSWS 2012).

Buena Vista Landfill has a total estimated capacity of 7.5 million cubic yards. As of 2010, approximately 45 percent of the estimated capacity remains, and the landfill is expected to provide capacity for solid waste until about 2031 (CDRRR 2012). Monterey Peninsula Landfill has an estimated total capacity of 49.7 million cubic yards. As of 2004, approximately 97 percent of the estimated capacity remains, and the landfill is expected to be active until about 2107 (CDRRR 2012).

3.17.2 Environmental Impacts and Assessment

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 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 that 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?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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

Wastewater services would be provided for construction workers by a licensed sanitation company, which would provide portable restrooms at work sites. These portable restrooms would be provided in accordance with applicable sanitation regulations established by the Occupational Safety and Health Administration, which generally require one portable restroom for every ten workers. Waste would be transported off site and disposed of at a sewage treatment plant in compliance with Regional Water Quality Control Board standards and regulations. The project would require up to 75 workers to be on site each day, organized into crews of six to nine people. The amount of effluent generated by construction crews would not cause area wastewater treatment plants to exceed treatment requirements, and impacts would therefore be less than significant.

Operation and Maintenance

Operation and maintenance activities for the proposed project would be conducted in generally the same manner as for the existing facilities, and would not result in an increase in wastewater production. No portable toilets would be used during the operation and maintenance phase of the project. No impacts to wastewater treatment are anticipated during operation and maintenance.

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 use during construction would be minimal. Water would be required for dust control as required by the Stormwater Pollution Prevention Plan (SWPPP) (APM HYD-01) and APM AIR-01, and may be further required to keep sandy soils firm during auguring of new pole holes. Approximately 0.74 acre-feet (240,000 gallons) of water would be used for dust control during the 15 to 18-month construction period. Water for project construction activities would be obtained from the SCMU or the City of Santa Cruz Neary Lagoon Treatment Plant. Potable water for the construction crews would be available at Rob Roy Substation and Green Valley Substation.

Wastewater generation during construction would be minimal and would include dust control water and wastewater generated by portable toilet facilities. Most of the water applied to project work areas for dust control would infiltrate the ground at or near the point of application and the remaining amount would be conveyed into the watershed. The small amount of wastewater generated by the portable toilets would be transported off site and disposed of at a sewage treatment plant. The project would not require the construction of new or the expansion of existing water or wastewater treatment facilities, and therefore impacts to these facilities during project construction would be less than significant.

Operation and Maintenance

Operation and maintenance activities for the rebuilt power line would be similar in scope to current activities and would not change the existing needs for water or wastewater treatment service in the project corridor. Water is currently used to wash the insulators and conductors. The minimal amount of additional water that would be required to wash the newly installed insulators and conductors would not result in the need for construction of new water or wastewater treatment facilities or the expansion of existing facilities, and therefore impacts of project operation and maintenance on water and wastewater treatment facilities would be less than significant.

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?

Construction

No existing municipal stormwater drainage facilities are located in the project corridor, with the exception of a system of roadside ditches and culverts on the east side of Freedom Boulevard. No new stormwater drainage facilities are proposed as part of the proposed project other than an expansion of the drainage system within PG&E-owned property to accommodate the minor expansion of the Rob Roy Substation.

Approximately 0.038 acres of impervious surface would be added to Rob Roy Substation to accommodate installation of new components. Seventy-nine to eighty-six new TSPs would be installed along the project alignment, each with a 3- to 7-foot-diameter concrete foundation, which would result in the addition of up to 0.1 acres of impervious surface. New wood poles and crossing structures would not require foundations and, as a result, would result in approximately 0.003 acres of impervious surface. Additionally, about 86 to 98 existing poles would be removed during project construction, resulting in the addition of approximately 0.009 acres of pervious surface to the project corridor. The total net amount of permanent impervious surface that would be added to the project corridor would approximately 0.2 acres, which would not significantly impact stormwater runoff and would not require the construction of new stormwater drainage facilities.

Increased stormwater runoff could occur as a result of vegetation removal and soil compaction in temporary work and staging areas and on unpaved access roads. A preliminary estimate of

approximately 46 acres of land would be graded and/or cleared of vegetation to reduce vegetative fuel and minimize fire hazards during project construction. However, the land to be graded or cleared is not contiguous and would be spread out over about 184 different work areas, not including access roads that could require minor grading. Construction-related activities would not result in large areas of ground disturbance within one contiguous area, and effects on stormwater runoff would be minimal and less than significant.

PG&E would also prepare and implement a SWPPP in accordance with APM HYD-01 to minimize construction impacts on surface water and groundwater quality resulting from stormwater runoff. The plan would designate Best Management Practices (BMP) (*e.g.*, silt fences, stockpile management, and waste management) that would be implemented, inspected, and monitored during construction by a Qualified SWPPP Practitioner. Impacts associated with stormwater runoff would be minimized with implementation of APM HYD-01, and construction or expansion of stormwater drainage facilities would not be required. Construction impacts on stormwater drainage facilities would therefore be less than significant.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to current activities and would not change the existing needs for stormwater drainage facilities in the project corridor. No impact would occur.

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
Water use during construction would be minimal, amounting to approximately 0.74 acre-feet (240,000 gallons) for the eighteen-month construction period. Sufficient water supplies would be available from the SCMU or the City of Santa Cruz Neary Lagoon Treatment Plant to meet project construction needs, and potable water is available at Roy Rob Substation and Green Valley Substation to supply the construction crew. Project construction would therefore have a less-than-significant impact on water supplies.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to those currently existing, and would not change the existing needs for water supplies in the project corridor. No impact would occur.

E) Would the project result in a determination by the wastewater treatment provider that 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
Project construction would generate a minimal amount of wastewater. The proposed project would supply portable toilets for construction workers, and sanitary waste would be disposed

of at appropriately licensed off-site facilities with adequate capacity. Construction impacts to wastewater treatment capacity would be less than significant.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to those currently existing, and would not change the available capacity of regional wastewater treatment facilities. No impact would occur.

F) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Construction
Project construction is anticipated to generate fewer than five tons of waste per day, which is less than 1.5 percent of the amount of refuse that Buena Vista Landfill, the closest landfill to the project corridor, accepts daily. All solid waste generated by project construction activities would be collected at a designated location in the project corridor and temporarily stored in receptacles or otherwise covered until disposal occurs.

Surplus material, equipment, and construction debris would be removed at the completion of construction activities. All man-made construction debris and other sources of refuse associated with construction activities (*e.g.*, plastic wrapping and other packaging, wood pallets, and consumable trash) would be picked up and hauled away as needed for recycling and/or proper disposal, as appropriate. All construction waste would be disposed of in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste disposal through transport to an authorized landfill. The approximately 22.8 miles of old conductor would be recycled through PG&E's Material Department at the Fremont Distribution Center. Approximately 86 to 98 wood poles would be transported to an appropriate licensed Class I landfill or the composite-lined portion of a solid waste landfill for disposal in accordance with Mitigation Measure Hazards-2.

Both solid waste disposal sites in the project corridor region (Buena Vista Drive Sanitary Landfill and Ben Lomond Transfer Station) have adequate capacity to accept treated wood waste and other types of refuse, including construction and demolition debris. Project construction would therefore have a less-than-significant impact on existing landfill capacity.

Operation and Maintenance
Operation and maintenance activities for the rebuilt power line would be similar in scope to those currently existing, and would generate minimal amounts of solid waste. The proposed project would not generate more solid waste than what is already associated with current operation and maintenance activities; therefore, no impact would occur.

G) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Project construction, operation, and maintenance activities would produce a relatively small amount of solid waste. All waste would be disposed of in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste disposal, and would be transported off site to a licensed landfill. All project activities would be conducted in compliance with all applicable statues and regulations, and no impacts are anticipated.

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?

Biological Resources

Fish and Wildlife Species Habitat

The proposed project would not have the potential to substantially reduce the habitat of a fish or wildlife species. No permanent changes would be made to fish habitat. The project corridor and many work areas have suitable habitat for Santa Cruz long-toed salamander. Mitigation is identified that minimizes vegetation removal in Santa Cruz long-toed salamander habitat and requires restoration of disturbed work area in suitable upland and dispersal habitat. Trees would be removed, which would reduce the amount of habitat available to nesting birds; however, the change would not be substantial since the number of trees removed would be a small fraction of the total trees available to nesting birds. Vegetation removal and tree pruning could affect the foraging and roosting habitat of bats, but the regional impacts to habitat would be negligible due to the abundant availability of unaffected habitat. Impacts to wildlife habitat would not be substantial and would be less than significant.

Fish and Wildlife Populations

The proposed project would not cause a fish or wildlife population to drop below self-sustaining levels. Fish habitat would not be altered, as previously discussed. Some project work may have the potential to cause sedimentation in fish habitat. Mitigation has been identified to reduce these impacts to less than significant levels including installation of sediment control devices. There would be no impact on fish populations. The project may cause impacts to wildlife, including wildlife mortality from use of construction equipment and from excavation. Common wildlife species may be killed during construction but incidental loss of a few individuals of common species would not reduce populations below self-sustaining levels. Impacts would therefore be less than significant. Implementation of mitigation measures would avoid impacts to special status species, nesting birds, and roosting bats, as described below.

Plant and Animal Communities

The proposed project would not threaten to eliminate a plant or animal community. Impacts could occur to various plants and animals, as discussed in section 3.4, Biological Resources. No impact would cause the eradication of entire communities of plants or animals. Impacts would therefore be less than significant. Impacts to special status plant and animal communities are discussed below.

Endangered Plants and Animals

The proposed project would have the potential to reduce the number of special status plants. The project would result in the removal of up to 0.01 acres of Monterey spineflower. Mitigation has been defined to reduce impacts to Monterey spineflower through pre-construction surveys

and avoidance, and where avoidance is not possible to compensate for the loss of Monterey spineflower through habitat enhancement and monitoring. Monterey pine, oak woodlands, and coastal scrub—a rare plant and protected habitats, respectively—would be removed in some project work areas. Mitigation has been defined to minimize removal and where trees or habitat cannot be avoided, compensatory replacement with monitoring would be implemented. Other rare plants may be located in the project area and may be impacted by project construction. Mitigation includes avoidance where feasible and compensation for impacted rare plants. Rare plant populations would not be lost due to project construction. The project, therefore, would not restrict the range of special status plants. Impacts would be less than significant.

Mitigation has been defined to avoid impacts to the Santa Cruz long-toed salamander through seasonal construction restrictions and the use of exclusion fencing. Tree removal may cause mortality of special-status bats. Measures are defined to avoid special-status roosting bats. Grading and excavation may result in mortality of San Francisco dusky-footed woodrats. Mitigation requires avoidance of woodrat houses where feasible or passive relocation to ensure that no individuals are harmed. None of the project components would prevent any special status species from moving through or within the project corridor, and the project would not result in elimination of populations of special status species in the project corridor. Impacts would therefore be less than significant.

Cultural Resources

The proposed project would not eliminate important examples of the major periods of California history or prehistory. Mitigation would require avoidance of CRHP and NRHP eligible historic resources. Mitigation would require that previously undiscovered resources discovered during construction would be avoided or else mitigated through data recovery. The proposed project, thus, would not cause impacts related to elimination of important examples of the major periods of California history and prehistory after implementation of mitigation.

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.)

Projects Considered

Table 3.18-1 includes a list of projects considered in this cumulative analysis. The list was compiled by contacting the surrounding local and state agencies (*e.g.*, Caltrans, City of Watsonville) to inquire whether any projects are being constructed, were recently constructed, or are currently planned near the project corridor. Projects were reviewed to identify whether the proposed project could contribute to cumulatively significant impacts when evaluated in combination with these other projects and, if there could be a potentially significant cumulative impact, whether the proposed project's contribution to a significant cumulative effect would be cumulatively considerable. Figure 3.18-1 shows the locations of identified projects in relation to the project corridor. The geographic area considered for cumulative effects varies by resource and is discussed under each resource topic.

Table 3.18-1: Cumulative Project List

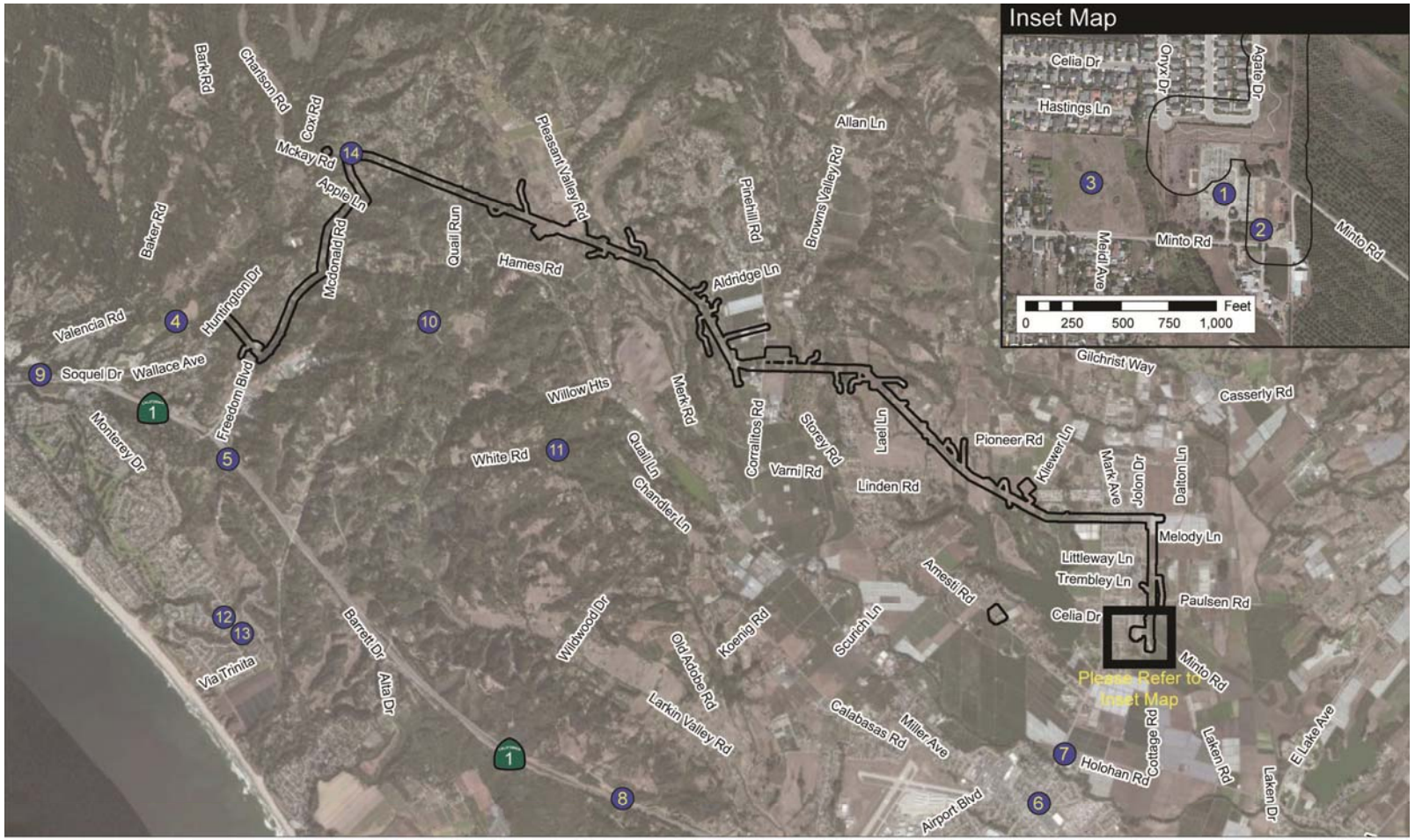
No.	Project Name	Project Components	Location	Status
1	Green Valley Substation Modification Project	Modification of Green Valley Substation.	Minto Road, at the Green Valley Substation	Design/planning phase; construction begins approximately 2015
2	Watsonville Voltage Conversion Project	Conversion to 115-kV voltage and relocation of a portion of the 60-kV power line between Green Valley Substation and Watsonville Substation.	Minto Road, at the Green Valley Substation to the Watsonville Substation	Design/planning phase; construction begins approximately 2016
3	Schapiro Knolls Apartments (formerly Minto Place Apartments)	Construction of 88 affordable rental housing units.	North side of Minto Road at Green Valley Road	Completed summer 2013
4	Polo Grounds Well and Treatment Plant	Removal of an existing well pump, column, and irrigation well pump appurtenances. Installation of a new well pump in an existing well. Construction of the well head enclosure and an iron and manganese treatment facility. Construction of 3,240 feet of potable water transmission mains, 2,690 feet of sanitary sewer lateral with manholes, and 1,100 feet of raw water discharge line to an existing sewer treatment system.	Polo Grounds Park, 2255 Huntington Avenue	Completed September 2012
5	Highway 1 Guardrail Upgrades	Improvement of metal beam guard rails and concrete barriers along approximately 14.3 miles of Highway 1.	Highway 1 (Trafton Road to 0.4 miles north of 41st Avenue)	Completed June 2012
6	Quinn Avenue Storm Drain Project	Construction of a 12-inch-diameter storm drain that connects with an existing apartment complex.	Quinn Avenue, Watsonville	Completed in June 2013
7	Arco Station	Gas station with minimart and car wash.	Intersection of Holohan Road and Green Valley Road, Watsonville	Under construction
8	Highway 1 Resurfacing	Repaving segment of Highway 1.	From Pajaro River Bridge to north Aptos underpass	Under construction; to be completed by fall 2013
9	Highway 1 Upgrades	Construction of concrete barriers, retaining walls, and guard rails. Upgrade of existing guard rails.	From south of south Aptos underpass to 0.1 miles north of State Route 9	Project development phase; construction to start in fall 2013

Table 3.18-1 (*Continued*): Cumulative Project List

No.	Project Name	Project Components	Location	Status
10	Tucker Pond Habitat Conservation Plan (HCP)	Management of Santa Cruz long-toed salamander at the Tucker family residence. A 38.8-acre Conservation Easement was created on the property which includes a breeding pond and adjacent upland estivation habitat of the SCLTS. The pond and upland habitat are being restored and maintained for breeding salamander.	Northeast of Highway 1 and south of Freedom Boulevard	Currently being implemented
11	Millsap Pond Restoration Project	Restoration effort undertaken by several agencies, including USFWS, CDFW, and California Conservation Corps (CCC). Work includes pond restoration to support Santa Cruz long-toed salamander breeding populations. The CCC removed 50 eucalyptus trees to increase the light and water temperatures in 2012. Additional trees are to be removed in late 2013 or early 2014.	At the intersection of White Road, Calabasas Road, and Gillette Road.	Currently underway
12	Willow Canyon Restoration Project	Restoration project to benefit the long-toed salamander as well as the California red-legged frog. CCC crews have removed approximately 4 acres of invasive pampas grass in upland habitats for the Santa Cruz long-toed salamander. Over the next two years 10 acres of pampas grass will be removed in Willow Canyon by the CCC as part of this project. A long-toed salamander pond will also be constructed in the canyon in the coming year. The project will be funded by the Coastal Program and monies from California state bonds. Approximately 0.36 acres of wetland/breeding habitat were restored in 2012. Approximately 16 acres of invasive weeds are to be removed by summer 2014 in summering and migratory habitat.	South of Highway 1, near Aptos and just north of Seascape Uplands Preserve	Currently underway
13	Seascape Uplands Preserve and HCP	The Seascape Uplands Preserve was set aside under the terms of an HCP for a 107-home residential development. A Preserve of approximately 150 acres was set aside to provide habitat for the Santa Cruz long-toed salamander	Bonita Drive on the east and by San Andreas Drive in Aptos	Currently being implemented
14	Upland habitat studies for the Santa Cruz long-toed salamander	PG&E, in conjunction with USFWS, is proposing to conduct scientific studies to address the migration of the Santa Cruz long-toed salamander away from known and potential breeding ponds near their transmission facilities. These studies will be undertaken under the guidance of CDFW and USFWS. The studies will involve pit fall trapping per protocols established by USFWS and in compliance with the recovery efforts for the species.	West of Corralitos Creek along the power line alignment	In the planning stages; will begin in October 2013

Sources: PG&E 2012; Caltrans 2013a; Caltrans 2013b;Caltrans 2013c; City of Watsonville 2012; PG&E 2009; SqCWD 2012; Sharp pers. comm. 2013; Hessing pers. comm. 2012; County of Santa Cruz Planning Department 2009; LoopNet 2012; Milar pers. comm. 2013; Hannula 2013

Figure 3.18-1: Cumulative Projects in the Project Corridor Vicinity



Cumulative Impacts

Resources with No Impacts

The proposed project would have no impacts to land use and planning, mineral resources, and population and housing, and therefore would not contribute to cumulatively significant impacts to these resource topics.

Aesthetics

The geographic extent of the analysis of cumulative impacts to visual resources includes the viewshed that could be affected by the proposed project from public roadways, trails, open space areas, homes, and other sensitive viewer locations. Three of the cumulative projects identified in Table 3.18-1 would be located within the same viewshed as the proposed project:

1. Green Valley Substation Modification Project
2. Watsonville Voltage Conversion Project
3. Schapiro Knolls Apartments

Construction. Construction of the proposed project would result in temporary visual changes to the area from the presence of equipment, graded earth, and personnel. The three projects considered in the cumulative analysis are all located at or nearly adjacent to the Green Valley Substation, which is at the southeastern terminus of the proposed project.

Construction of the Schapiro Knolls Apartments is complete. Therefore, the Schapiro Knolls Apartments would not have any construction related visual impacts and would not contribute to construction-related cumulative impacts.

The Watsonville Voltage Conversion Project and the Green Valley Substation Modification Project could be constructed at the same time as the proposed project. The Watsonville Voltage Conversion Project could begin during construction of the proposed project. The portion of the project near the Green Valley Substation would be similar to the upgrade work occurring on the proposed project and would be linear. It is therefore not known if, but it is possible that, construction on the Watsonville Voltage Conversion Project would occur near the Green Valley Substation at the same time as work on the proposed project. The Green Valley Substation Modification Project may be constructed at the same time as the proposed project. Some cumulative visual impacts could result from the presence of construction equipment and from general construction activity associated with the Green Valley Substation Modification Project in conjunction with construction of the proposed project. Construction would likely be confined to within the existing footprint or within the immediate vicinity of the substation. There is a small number of viewers (*i.e.*, residents, motorists on local roads) who can see to the viewshed where all three projects are visible. This area is of relatively poor aesthetic quality due to abundant existing transmission infrastructure. Simultaneous construction activities would also be temporary. The cumulative impact of the simultaneous construction of either or both of these projects at the same time as the proposed project would therefore be less than significant.

Operation and Maintenance. Visual impacts from the implementation of the proposed project would result from the presence of new, taller pole structures; additional conductor for the new line; and minor changes to Rob Roy Substation facilities.

Schapiro Knolls Apartments would be visually consistent with the residential character of the area, which is generally of low visual quality. The Watsonville Voltage Conversion Project and Green Valley Substation would include upgrades to existing infrastructure that is already part of the visual landscape. The visual quality in the area is low due to the existing residential development and the abundant existing transmission infrastructure. There is a small number of viewers (*i.e.*, residents, motorists on local roads) who can see to the viewshed where all three projects are visible. New poles and facilities would be consistent across projects and could have a beneficial visual impact due to the unity of the new and maintained structures. Operation of these three projects (the apartments and the two transmission projects) in tandem with the proposed project would not result in significant cumulative visual impacts.

Agriculture and Forestry Resources

The geographical extent for the analysis of cumulative impacts to agriculture and forestry resources is Santa Cruz County. Santa Cruz County has an estimated 24,000 acres of land designated for agricultural use (Land Trust of Santa Cruz County 2012). Santa Cruz County includes approximately 190,000 acres of forest land and 125,000 acres of timberland (Land Trust of Santa Cruz County 2007). The number of farms in Santa Cruz County decreased by 10 percent from 2002 to 2007 from 754 to 682 and decreased in land acreage by 29 percent from 67,166 acres to 47,489 acres (US Agricultural Census 2007). Forestry lands have generally declined as well over the same period.

Construction. The proposed project would temporarily disturb approximately 21 acres of farmlands and 36 acres of forest land. However, temporarily converted farmland by definition would be restored to original conditions and thus the project's construction would not contribute to a significant cumulative impact to farmland within the County.

Operation and Maintenance. The proposed project would permanently disturb less than 0.02 acres of farmland and less than 0.5 acres of forest land. Several of the projects included in Table 3.18-1 are in the environmental planning stage and the acreage of farmland and forest land that could be converted by these projects cannot yet be precisely quantified; however, all projects except the Watsonville Voltage Conversion Project are relatively small in size, do not span a great distance (*e.g.*, Arco Station, Green Valley Substation), and/or occur in areas already disturbed and not used for farmland or forest land (*e.g.*, Highway 1 upgrades and resurfacing of the existing highway).

Most projects identified in Table 3.18-1 would not result in conversion of a substantial amount of farmland or forest land. The Watsonville Voltage Conversion Project, however, would pass through areas that appear to be used for agriculture and forest lands. The project is similar to the proposed project and involves modification to an existing line and thus would not result in the conversion of a substantial amount of agriculture in the County to non-agricultural use.

Transmission upgrade projects do not require substantial conversion of land as land is usually only permanently lost around the base of poles. Cumulative impacts to agriculture and forestry would be less than significant.

Air Quality and Greenhouse Gases

The geographic extent for the analysis of cumulative air quality impacts would be generally limited to the North Central Coast Air Basin (NCCAB), which is designated as nonattainment for the state O_3 and PM_{10} standards. As described in Sections 3.3 Air Quality and 3.7 Greenhouse Gas Emissions, pursuant to MBUAPCD policy, projects that would be inconsistent with the applicable Air Quality Management Plan or induce population growth beyond that estimated in current population projections would be considered to have a significant cumulative impact related to criteria air pollutant emissions.

Construction. Construction of the proposed project would not induce population growth because most workers would commute from the surrounding area and are expected to be local residents. Construction activities would not cause workers to permanently relocate to the area and thus would not be inconsistent with population projections. Construction is consistent with the AQMP, as discussed in Section 3.3, Air Quality (Clymo pers. comm. 2013). The project would therefore not have a cumulatively significant impact on air quality.

Construction impacts of greenhouse gases would combine with greenhouse gas emissions from projects worldwide to create significant cumulative impacts, such as sea level rise and other climate change related impacts. The project's contribution would be approximately 4,865.21 metric tons per year of CO_2eq for a period of up to 15 to 18 months (*i.e.*, a total of 7,297.82 metric tons of CO_2eq). This contribution would not be cumulatively considerable, since the total greenhouse gas emissions in the state were 457 million metric tons of CO_2eq in 2009.

Operation and Maintenance. The proposed project would not induce population growth; it would allow PG&E to better serve existing customers by increasing reliability of the distribution system. The minor emissions associated with operation would not be in conflict with the AQMP and cumulative impacts would be less than significant (Clymo pers. comm. 2013).

Emissions from operation and maintenance of the proposed project would be similar to current activities and thus emissions would not increase over current operation and maintenance emissions. The project would thus not contribute to a cumulative impact to greenhouse gases.

Biological Resources

The geographic extent of the analysis of biological resources encompasses an area of approximately 2 miles across centered on the proposed project alignment. Within this area individuals of the same species or species of similar populations and similar habitats could be impacted by the proposed project and at least one of the cumulative projects.

Construction. Impacts from the proposed project to wetlands and other potentially jurisdictional waters would be minimized by routing most access roads and overland routes around potential wetlands and waters and locating all areas of earthwork (i.e., staging areas/landing zones and

storage yards) outside of wetlands and water resources. The proposed project would require limited construction within and filling of two wetland areas for access, totaling approximately 0.87 acres. Impacts to these two wetlands would be minimized through compensation or restoration required by permits and through the implementation of mitigation that would reduce the potential for spread of invasive species. The extent of wetland impacts from other projects is not known at this time. However, none of the projects are expected to result in substantial fill of wetlands, due to the nature of the projects. The Watsonville Voltage Conversion Project, the Highway 1 upgrades, and the various Santa Cruz long-toed salamander habitat restoration projects would most likely have some impacts to wetlands. The Watsonville Voltage Conversion Project would likely have impacts of a similar scale to the proposed project, which is minimal. The Highway 1 upgrades may also impact wetland areas but impacts would be limited since most work would occur along the road and road grade where wetlands are not likely to be found. The restoration projects would have positive impacts on wetlands and habitat. These other projects would also require permits and implementation of restoration and compensation to minimize wetland impacts in the region. A cumulative impact to wetlands is therefore not likely to occur.

The amount of critical habitat impacted by the cumulative projects is not known at this time. Therefore, a cumulative impact could occur to critical habitats. The proposed project's contribution to a potentially significant impact, however, would not be cumulatively considerable. The project corridor contains critical habitat for steelhead south-central DPS; however, no construction would occur in these areas because project components would span the habitat in Corralitos Creek. Indirect impacts from the project would be minimized by implementation of a measure that would prevent sedimentation of creeks and waterways by requiring installation of sediment control devices. The project would therefore not contribute to a cumulative impact on steelhead south-central DPS critical habitat. The project corridor contains a very small piece of critical habitat for Monterey spineflower. Mitigation requires avoidance of this area. The project would therefore not have a significant contribution to a cumulative impact to Monterey spineflower critical habitat.

The proposed project could impact special-status plant and animal species. The identified cumulative projects may also impact special status species, and mitigation of some projects has not yet been defined. Monterey spineflower is not anticipated to be present at the Green Valley Substation Modification site or at the Schapiro Knolls Apartments site. It is unknown whether this species is present within the Watsonville Voltage Conversion Project area (PG&E 2012). Nesting birds and bat roosts may be present within the Green Valley Substation. The Schapiro Knolls Apartments project involves development of 4.4 acres of grassland habitat with the potential for nesting birds and bat roosts. Nesting birds and bat roosts could also be present within the Watsonville Voltage Conversion Project area. The apartment project is located in an area that was previously used for agriculture and is disturbed as a result. The project would be infill in an area dominated by residential development (County of Santa Cruz Planning Department 2009). The majority of the Watsonville project, similar to the proposed project, would be located within existing utility ROWs; therefore, impacts would generally be limited in

extent and temporary (*i.e.*, during construction only). However, since the extent of impacts from other projects and mitigation is not known at this time, cumulative impacts to special status species could occur.

The proposed project's contribution to a potentially significant impact would not be cumulatively considerable. Mitigation has been identified for the protection of special-status species such as dusky-footed woodrat; white-tailed kite, burrowing owl, and other migratory bird species; bats; and special-status plants, including Monterey spineflower. Mitigation for permanent impacts to rare plants and riparian and coastal scrub habitat would include restoration plans that would ensure that the proposed project would have less than significant impacts on these resources. Compliance with tree removal mitigation measure would ensure replacement at 1:1 or greater ratios for oaks and Monterey pine removed as a result of the proposed project. Therefore, the project's contribution to a potentially significant impact to special status species would not be cumulatively considerable.

The project could impact Santa-Cruz long-toed salamander. Cumulative impacts could occur with impacts from nearby projects. Santa Cruz long-toed salamander habitat is not anticipated to be present at the Green Valley Substation Modification site or at the Schapiro Knolls Apartments site. It is unknown whether habitat for this species is present within the Watsonville Voltage Conversion Project area (PG&E 2012). Other cumulative projects may also impact the species. It is unknown what mitigation would be defined for these projects. Other projects considered in this cumulative analysis include the Tucker Pond HCP, the Millsap Pond Restoration Project, the Seascape Uplands Preserve and HCP, and the Willow Canyon Restoration Project, which are all located within approximately 2 miles of the project corridor (encompassing the species' metapopulation in the area). Each of these projects includes habitat restoration and scientific studies of the species. The studies usually include surveys and monitoring of the size and health of the populations of salamander in the restoration area. Surveying and monitoring is performed according to standard methodologies approved by USFWS and CDFW. Pitfall traps[1] are typically used. While the surveys involve some risks to the animals, the data collected allows for the proper planning of habitat restoration efforts to ensure overall population increases and benefits, offsetting the risks. Each of these restoration projects has a net benefit of increasing the number and health of individuals in the populations. PG&E is also proposing to sponsor a separate, scientific study to understand the movement of Santa Cruz long-toed salamanders in upland habitat west of Corralitos Creek in the area of their transmission facilities. Data from all of the studies, including PG&E's sponsored study, would be used by USFWS, CDFW, and PG&E for species management purposes in the efforts to

[1] Pitfall traps are containers recessed into the ground and used to capture terrestrial animals. Animals fall into the traps and cannot get out. Traps include predator covers and are checked frequently to release captured animals. Pitfall traps used to provide data for distribution, inventory, indices of abundance, density estimates, population trends, site occupancy and estimates of survival. Pitfall trapping requires capture and subsequent handling of the animals.

recover the species. These projects are consistent with the recommendations and guidelines of the USFWS 1999 recovery plan for the species, which calls for additional scientific studies and habitat restoration efforts. Since the extent of impacts from the other projects is not known at this time, however, a significant cumulative impact to Santa Cruz long-toed salamander could occur.

The proposed project's contribution to a potentially significant impact would not be cumulatively considerable. Mitigation has been defined for the proposed project that requires that work in Santa Cruz long-toed salamander habitat is only conducted outside of the migration season for the animal and within areas with exclusion fencing. Burrows would be avoided during access in Santa Cruz long-toed salamander upland habitat or covered with plates to prevent crushing of any animals within the burrows. With implementation of these and other measures (worker training, preconstruction surveys, habitat restoration, etc.) impacts to the Santa Cruz long-toed salamander would be avoided. Therefore, the project would not contribute to an overall cumulative impact to the Santa Cruz long-toed salamander.

Operation and Maintenance. Most cumulative projects would be in the operational phase. The Watsonville Voltage Conversion Project could be constructed and operated during operation of the proposed project. Impacts from operational projects could include trampling (*e.g.*, from vehicle travel to perform maintenance) of vegetation and wildlife. Operation and maintenance impacts from the Watsonville Voltage Conversion Project could be similar to the proposed project, but would be dependent on the species present in that area. Depending on the mitigation implemented in other projects and the species present, this could result in a potentially cumulative impact to biological resources.

The project's contribution to a significant cumulative impact would not be cumulatively considerable. Impacts to biological resources during operation and maintenance would be similar to existing impacts from operation of the existing facilities. Operation could involve some vegetation removal for maintenance around poles. Impacts to special status plant species, avian species, and Santa Cruz long-toed salamander would be similar to construction impacts and would be mitigated to less than significant levels through seasonal avoidance, fencing, and other methods. The proposed project would include mitigation to ensure that no avian species are impacted, no special status plants populations are lost, and no other special status species are significantly impacted.

Cultural Resources

The geographic extent for the analysis of impacts to cultural resources is the region where similar cultural resources can be found.

Construction. Construction of the proposed project and other projects in the area have the potential to impact cultural resources, resulting in a cumulatively significant impact. The proposed project, however, would have no impacts to known cultural resources because it would avoid all resources.

The likelihood of encountering previously undiscovered resources varies by project segment but is generally moderate to low. Any previously undiscovered cultural resources that are discovered during construction would be avoided. If a previously undiscovered resource cannot be avoided, it would be mitigated such that the important data from the resource would be obtained and preserved. Significant cumulative impacts to cultural resources could occur from the loss or destruction of the cultural history of the region. Since no resources would be impacted and no information lost, construction of the proposed project would not contribute to a significant cumulative impact.

Operation and Maintenance. Operation would not involve ground disturbing activities in previously undisturbed areas or other activities that could affect cultural resources. Operation and maintenance of the proposed project would not contribute to a cumulative impact.

Geology and Soils

The geographical context for cumulative impacts to geology and soils includes areas in and adjacent to the project corridor because erosion and geologic/soil stability impacts from the proposed project would be confined to these areas.

Construction. The impact of the proposed project on geology, soils, and seismicity would be localized during construction. The only projects identified in Table 3.18-1 that are immediately adjacent to or in the project corridor are:

1. Green Valley Substation Upgrade
2. Watsonville Voltage Conversion Project
3. Schapiro Knolls apartments

These projects, in the vicinity of the proposed project, are located in relatively flat areas, which reduce the potential for erosion. The amount of erosion that could occur in the area of the Green Valley Substation from the Green Valley Substation Project and Watsonville Voltage Upgrade Project would be small because the projects are similar to the proposed project. The Schapiro Knolls Apartments were constructed according to geological investigation recommendations. Cumulative erosion impacts would be less than significant.

Operation and Maintenance. The proposed project would be constructed in accordance with the most recent version of the California Building Code seismic safety requirements and recommendations contained in the respective project specific geotechnical report. The Schapiro Knolls Apartments were constructed according to geological investigation recommendations. The Green Valley Substation Upgrade and Watsonville Voltage Conversion Project would have to comply with applicable engineering standards. Cumulative seismic impacts would be less than significant. The operation stages of the proposed project and the other projects would not involve ground disturbing activities that could create a substantial amount of erosion, and the amount of permanent soil disturbance from each project would be minor. Thus, cumulative impacts related to erosion would be less than significant.

Hazards and Hazardous Materials

The geographic scope for cumulative hazards and hazardous materials impacts includes areas in which hazardous materials are used for proposed project activities and the immediately surrounding area where spills or upset could have combined impacts.

Construction. Use of hazardous materials for the proposed project would be minimal during construction. Other projects that could use hazardous materials near or in the project corridor include the Green Valley Substation Upgrade project and Watsonville Voltage Conversion Project. Nearby projects constructed during the same timeframe as the proposed project would be required to comply with applicable federal, state, and local safety regulations to minimize risk to the public and workers. Cumulative impacts from hazards and hazardous materials would be less than significant.

Operation and Maintenance. Operation and maintenance of the proposed project would not be appreciably different from current activities and current use of hazardous materials. The proposed project thus would not contribute to a cumulative impact related to hazards and hazardous materials during operation and maintenance.

Hydrology and Water Quality

The geographic context for the cumulative impacts associated with hydrology and water quality is the watershed within which the projects identified in Table 3.18-1 and the proposed project is located.

Construction. The proposed project, along with the projects identified in Table 3.18-1, would be required to comply with applicable federal, state, and local water quality regulations. The proposed project, along with other projects involving similar general construction activities, would be required to obtain coverage under the General Permit, Section 401 (of the Clean Water Act) water quality certification, and/or Waste Discharge Requirements (WDRs). Required storm water management measures would be identified and implemented that would effectively control erosion and sedimentation and other construction related pollutants during construction. Other required management measures, such as construction of infiltration/detention basins, would be identified and implemented that would effectively treat pollutants that would be expected for the post-construction land use for certain projects. Construction-related stormwater runoff from the proposed project would be controlled by the requirements of a National Pollution Discharge Elimination System (NPDES) permit (e.g., General Permit), WDR measures, and mitigation measures required as part of this IS/MND. Other new development in the area would also be required to control construction and operational stormwater by implementing federal, state, and local requirements regarding hydrology and water quality, as well as by requirements introduced through CEQA review, where applicable. The imposition of such requirements would ensure that cumulative impacts to hydrology and water quality would be less than significant. Impacts related to wetlands were discussed previously under Biological Resources.

Operation and Maintenance. Operation of the proposed project would not be appreciably different than current activities and therefore the project would not contribute to cumulative impacts to water quality.

Noise

The geographic scope for cumulative noise impacts is the area where noise from other projects would combine with noise from the proposed project.

Construction. Noise from construction of projects near the proposed project could combine with noise from the proposed project to create a cumulative noise impact, if the construction occurs at the same time and in the same area. The Green Valley Substation area is the sole location along the route where construction of the proposed project could occur at the same time as the other projects. The Green Valley Substation Modification Project and the Watsonville Conversion Project may be constructed in that area during construction of the proposed project. The Conversion project is similar to the Rob Roy Substation element of the proposed project and would likely have similar noise impacts during construction.

The closest existing sensitive receptor to the Green Valley Substation work area and contractor construction yard (which are directly adjacent to the substation) is the Schapiro Knolls Apartments, approximately 100 feet east of the Green Valley Substation. Noise in this area from the combination of noise from all the projects may exceed 80 dBA. It is likely that the other projects would implement noise abatement measures, but it is not known for sure. The combination of noise generated by the proposed project and the noise other projects generate may produce a significant cumulative noise impact on sensitive receptors.

The amount of project-related construction activities in the area of the Green Valley Substation would be minimal (limited to installation of approximately eight poles and the use of the contractor construction yard and work area), such that construction-related noise would not last for an extended amount of time in the area (*i.e.*, only a few days in each construction area). Construction activities would also generally take place during the hours of 7:00 AM to 5:30 PM, when residences are least sensitive to elevated noise levels. The proposed project could add to the noise levels enough to cause exceedance of the significance threshold. Noise impacts of the proposed project would not be cumulatively considerable with implementation of Mitigation Measure Cumulative-1.

> **Mitigation Measure Cumulative-1:** PG&E shall not conduct construction activities when other projects are being constructed nearby such that noise impacts at sensitive receptors in the area exceed an 8-hour L_{eq} of 80 dBA.

Operation and Maintenance. Operational noise would be minimal and would not exceed background noise levels. The proposed project would generate approximately 3 dBA of increased corona noise, which would be intermittent and generally masked by other noise sources, such as traffic and weather. The Watsonville Voltage Conversion Project, also rated at 115 kV and that terminates at the Green Valley Substation, would likely have similar noise

impacts that would be masked by other noise sources in the area. Other operation and maintenance noise would include noise generated by occasional project vehicles and people.

Some of the other projects would generate noise during their operation phases and are close enough to combine with noise impacts from the proposed project during its operation. The Schapiro Knolls Apartments would have associated vehicle noise from exiting and entering vehicles and other noise typical of a suburban area. The apartments are adjacent to the Green Valley Substation in the project corridor. Current land use in the area is suburban, and it is assumed that the apartment building would create noise consistent with the existing noise environment. The projects would not result in significant cumulative noise impacts because they either would result in minor increases in noise that would be consistent with the existing noise environment or masked by existing noise.

Public Services

The geographic scope of this impact is the service area of affected public services, generally limited to the area within Santa Cruz County. The project corridor spans several jurisdictions in which there are numerous emergency service providers.

Construction. The construction schedules for the Green Valley Substation Modification and the Highway 1 Upgrades could overlap with construction of the proposed project. The Schapiro Knolls apartments are currently occupied. There is a chance that the construction of the proposed project in tandem with the other projects may result in cumulative impacts, should multiple emergencies happen at the same time. The probability of a single emergency incident during construction of the proposed project is low, and the probability of multiple emergencies at the same time at different sites is even lower. Construction of the proposed project would not bring permanent residents to the area that would increase the need for school facilities. The construction of these projects would not require provision of new or altered government facilities, and there would be no significant cumulative impact.

Operation and Maintenance. 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. The proposed project would thus not contribute to a cumulative impact on public services during project operation.

Recreation

The geographic scope of this impact includes the regional recreation facilities in the project corridor, generally located within Santa Cruz County.

Construction. One other project is known to occur in a recreational area: the Polo Grounds project is located in Polo Grounds Park at its far eastern extent. The Polo Grounds project had adverse but not significant effects on recreation, including a minor increase in ambient noise (from equipment and from regular maintenance) in the immediate vicinity of the project location that was not expected to substantially disrupt nearby recreational uses (SqCWD 2010). The Watsonville Voltage Conversion Project may pass through parks. Impacts are expected to be similar to those from the proposed project, in that temporary closure of parks during

construction for a few days could cause increased recreation elsewhere that would be temporary and negligible. Impacts to recreation from construction of the proposed project would be limited to temporary, partial closure of Pinto Lake County Park, which could result in temporary and minor increased use of nearby parks. This impact would be limited to a few days and be minimal. Impacts from both projects would also likely be dispersed among parks in the area, as there are many. No new facilities would need to be constructed, and cumulative impacts to recreation would be less than significant.

Operation and Maintenance. The proposed project would not impact recreation during operation and would not cause use of other parks and thus would not contribute to a significant cumulative impact.

Transportation and Traffic

The geographic scope of analysis for cumulative impacts to transportation and traffic includes roads that would be used for project construction, operation, and maintenance activities.

Construction. Construction activities for the proposed project would have temporary impacts on traffic volumes, road hazards, and emergency access. Low levels of traffic volume would be added to public roads due to project construction related vehicles. Traffic impacts could occur from all area projects with potentially overlapping construction timeframes or from projects in the post-construction stage that would be operating during the proposed project's construction period.

The Green Valley Substation Modification, Watsonville Voltage Conversion Project, and Highway 1 upgrades projects could have construction traffic impacts during construction of the proposed project. The Highway 1 upgrades project's eastern terminus is located approximately 1 mile (and a greater distance when travelling on roads) from the nearest part of the project corridor. Its contribution to cumulative traffic would not combine with the project's to generate a significant cumulative impact.

Traffic associated with the Green Valley Substation Modification and Watsonville Voltage Conversion Project activities near the Green Valley Substation are close enough to combine with traffic impacts from the proposed project. Roads that could be used for multiple projects at the same time include Minto Road and Green Valley Road. The number of daily vehicle trips for the Green Valley Substation Modification and Watsonville Voltage Conversion Project is unknown; however, due to the small size of the project activities in that area, it is unlikely to result in substantial traffic near the Green Valley Substation.

Of the projects that would be completed at the time of construction of the proposed project, Schapiro Knolls apartments, the Arco Station, and the Polo Grounds project would have associated traffic. The Polo Grounds project has negligible traffic associated with occasional maintenance. The Arco station creates a concentration of traffic entering and exiting into the streets and adjacent intersection of Holohan Road and Green Valley Road. Schapiro Knolls has 88 apartments with 241 parking units. It would cause traffic impacts during the construction of the proposed project, with the level of traffic depending on occupancy of the apartments. The

apartment project would also involve a traffic signal at Minto Road and Green Valley Road. The apartments include construction of sidewalks (Jones 2012). The number of daily vehicle trips for the Schapiro Knolls apartments is unknown; however, Minto Road does not currently have a substantial amount of daily traffic that could be disrupted by this project, and the apartment project incorporates traffic-calming measures such as a traffic light. Cumulative impacts to traffic levels could still occur. Most projects would involve minor amounts of traffic, except the Schapiro Knolls Apartment project. Depending on the occupancy of the apartment building at the time of construction of the proposed projects, the traffic impacts of the apartment complex, Arco Station, proposed project, Green Valley Substation Modification, and Watsonville Voltage Conversion project may be cumulatively significant on roads in the area (*e.g.*, Minto Road, Green Valley Road).

The proposed project's contribution to the cumulative impact in the Green Valley Substation area would not be cumulatively considerable. The proposed project would not cause a change in LOS on any of the studied roads, including those that would be affected by the other projects, with most roads experiencing less than a 2 percent increase in traffic from the proposed project. Construction would be temporary (because only approximately 10 poles would be located in the area) and PG&E would implement mitigation including implementation of a Traffic Management Plan to ensure safety measures are implemented, flaggers and signage is used, and that lane closures would be carefully planned around traffic flow, etc. The proposed project's contribution to cumulative traffic impacts would not be cumulatively considerable, given the small increase in traffic associated with construction of the proposed project.

Construction activities could temporarily interfere with the normal function of the roadways and could increase traffic safety hazards. Other projects in the area could also increase safety hazards. The Arco station would have exiting and entering traffic, which can affect the flow of traffic on roadways and create a safety hazard; however, project-related traffic at the Arco station would not contribute to the safety hazard because there are no project elements concentrated in that area that would result in safety impacts. The Schapiro Knolls Apartments includes traffic safety features, such as a traffic light and sidewalks. Activities for the Green Valley Substation Modification and Watsonville Conversion Project could cause traffic hazards in that area due to exiting and entering trucks and equipment. The proposed project in this area would have large trucks and equipment entering and exiting; however, this area is already low-speed and the hazards would be minimal. Cumulative impacts in the area would be less than significant.

The Green Valley Substation Modification and Watsonville Voltage Conversion Project could block emergency access in the Green Valley Substation area, which could result in a cumulatively significant impact in tandem with the proposed project's impacts. The proposed project's impacts would not be cumulatively considerable because PG&E would coordinate with emergency service providers at least 24 hours to road closures.

The proposed project would require the use of a helicopter during construction for deliveries and installation at select pole locations. None of the projects that would be operating or

constructed during the construction of the proposed project are of the type that would require helicopter use. The project would thus not contribute to a cumulative impact.

Operation and Maintenance. Impacts to traffic and transportation during operation and maintenance would be the same as those during current operation and maintenance. There would thus be no impact from the project that would in tandem with other projects result in a significant cumulative impact.

Utilities and Service Systems

The geographic scope of cumulative impacts analysis for utilities and service systems includes the service system territories that include both the proposed project and the projects listed in Table 3.18-1.

Construction. Construction of the proposed project would require some wastewater treatment for effluent. Other projects that could be constructed at the same time as the proposed project—Green Valley Substation Modification, Highway 1 Upgrades—would also require minimal wastewater treatment for effluent. Highway 1 resurfacing and the Quinn Avenue storm drain project would not require wastewater treatment during construction of the proposed project because their operating components would not generate wastewater. The Polo Grounds Well and Treatment Plant project included infrastructure to accept waste from the treatment plant, the park restrooms, and houses on North Polo Drive (which were on septic systems) (RCD Santa Cruz 2005). Schapiro Knolls Apartments would be completed by the start of construction of the proposed project and would require wastewater treatment. The Freedom County Sanitation District has capacity to provide sewer service to the apartments (McCormick 2009). The Freedom County Sanitation District has approximately 15 million gallons per day of unused capacity, and the Santa Cruz County Sanitation District has approximately 2 million gallons per day of unused capacity rights (Santa Cruz County 2012), which should be sufficient to serve treatment needs of the other projects. Significant cumulative impact related to sewage treatment capacity would not occur.

Construction of the proposed project would create a minor increase in stormwater drainage due to the addition of approximately 46 additional impervious acres spread out over more than 184 different work areas created during construction. Most projects are located far enough from the proposed project that their stormwater impacts could not combine with those of the proposed project. However, stormwater impacts at the Green Valley Substation may combine with stormwater impacts (*e.g.*, increase in surface water that flows into drainage systems) of nearby projects, such as Schapiro Knolls Apartments. The Schapiro Knolls Apartments project contains mitigation for stormwater impacts, such as preparation of a comprehensive stormwater management plan (Burns 2009). The Green Valley Substation Modification Project would generally take place within the footprint of the existing substation so that the additional impervious surface added would be minor. The Watsonville Voltage Conversion Project would not add substantial amounts of impervious surface to the Green Valley area because few poles and work areas would be located near the area and the work areas would be small

(approximately the same size as those for the proposed project). Cumulative impacts would be less than significant.

Construction of the proposed project would require approximately 0.74 acre-feet of water over the 15- to 18-month construction period (*i.e.*, approximately 0.04 acre-feet per month) from the City of Santa Cruz Municipal Utilities or the City of Santa Cruz Neary Lagoon Treatment Plant. Schapiro Knolls Apartments would obtain water from a different water supplier. It is unknown where the other construction projects that could occur at the same time would obtain their water supplies. The City's water supply is able to meet annual demand in years with normal rainfall and runoff and has supply in excess of demand; however, the supply is highly vulnerable to shortages in dry periods (City of Santa Cruz 2010). In 2015, in a dry year, it is projected that the City of Santa Cruz will have 56 million gallons of excess water. In 2015, if there are multiple dry years, there would be a water deficit of 1,044 million gallons of water. There would be a cumulative significant impact from the use of water for these projects if there is a water shortage/deficit during project construction. That impact would be cumulatively considerable because any additional water use during a water shortage would exacerbate the shortage. Mitigation Measure Cumulative-2 would limit water use in shortage situations so that the impact of the proposed project would not be cumulatively considerable.

> **Mitigation Measure Cumulative-2:** PG&E shall not obtain water from the City of Santa Cruz during a Water Shortage Alert, Water Shortage Warning, Water Storage Emergency, Severe Water Shortage Emergency, or Critical Water Shortage Emergency (Stages 1, 2, 3, 4, and 5, respectively), as defined in the City of Santa Cruz Water Shortage Contingency Plan (March 2009).

Construction of the proposed project would require the disposal of waste. Other construction projects would likely require disposal of waste in the same time period, including the Highway 1 upgrades and the Green Valley Substation Modification Project. The Buena Vista Landfill located in the City of Watsonville would be used to dispose of the proposed project's waste materials. This landfill has an estimated capacity until 2031, which accounts for yearly growth in population and associated increased waste generation from cumulative area projects. Cumulative impacts to landfill capacity would be less than significant, and no expanded facilities would be needed for the waste generated by the project.

Operation and Maintenance. Operation and maintenance of the proposed project would have wastewater, water supply, and waste disposal impacts that are the same as current operation, and thus there would be no appreciable change in impacts from the present and no contribution to cumulative impacts to these utilities and services.

Operation and maintenance activities for the rebuilt power line would only cause an increase of approximately 0.2 acres of impervious surface, which would have a negligible impact on stormwater drainage in any given location, particularly because the acreage would be spread across the entire alignment. The Schapiro Knolls Apartments includes mitigation for stormwater impacts. The other two projects located near the proposed project—Green Valley

Substation Modification Project and Watsonville Voltage Upgrade Project—would have negligible drainage impacts because the area is relatively flat and the projects are similar to the proposed project and thus would not add a substantial amount of impervious surface. Cumulative impacts would be less than significant.

C) Would the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project would not adversely affect human beings directly or indirectly. Environmental parameters with particular potential to temporarily impact human health during project construction would include changes to air quality, hazards, and hazardous materials use. Potential impacts from geologic instability and hazardous materials that could affect human beings during construction would be reduced to a less than significant level with the implementation of mitigation measures including implementation of an Environmental training and Monitoring Program and Hazardous Substance Control, an Emergency Response Plan, a Health and Safety Plan, and implementation of a SWPPP. APMs are also included as part of the proposed project to minimize effects. Proposed operation and maintenance activities would generally be the same as current operation and maintenance practices; therefore, no contribution to cumulative impacts would occur. The proposed project would have a beneficial effect on area residents by providing more efficient and reliable transmission line services.

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4 MITIGATION MONITORING PLAN

4.1 OVERVIEW

PG&E proposes to construct and operate the Santa Cruz 115-kV Reinforcement Project. PG&E proposes to:

- Rebuild approximately 7.1 miles of the existing Green Valley-Camp Evers 115-kilovolt (kV) Power Line (**Northern Alignment**) from a single-circuit line to a double-circuit line by replacing the existing wood power poles with tubular steel poles (TSP) and installing new conductors
- Construct an approximately 1.7-mile long single-circuit 115-kV power line in an existing distribution right-of-way (ROW) (**Cox-Freedom Segment**) from the Northern Alignment to Rob Roy Substation
- Install new components at **Rob Roy Substation** in order to accommodate the new 115-kV circuit and installing TSPs to accommodate the interconnection of the existing Green Valley-Rob Roy 115-kV Power Line and Rob Roy-Paul Sweet 115-kV Power Line into the modified Rob Roy Substation.

An Initial Study was prepared to assess the proposed project's potential environmental effects based on information in the Proponent's Environmental Assessment (PEA), project site visits, responses to CPUC data requests, and supplemental research. The majority of the project's impacts would occur during project construction. In its PEA, PG&E proposed APMs to reduce potentially significant adverse impacts related to project construction and operation. APMs were finalized during preparation of the Initial Study.

The purpose of this Mitigation Monitoring Plan (MMP) is to ensure effective implementation of each APM, as well as the mitigation measures identified in the MND and imposed by the CPUC as part of project approval.

The MMP is presented in Table 4.1-1 and includes:

- APMs and mitigation measures that PG&E must implement as part of the project
- The 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 CPUC will create the MMCRP to formalize protocols to be followed prior to and during construction by CPUC third-party Environmental Monitors

(EM) and PG&E staff. The MMCRP will include, but will not be limited to, the following topics:

- Agency jurisdiction
- Roles and responsibilities
- Communication
- Compliance verification and reporting
- Project changes

A CPUC-designated environmental monitor will carry out all construction field monitoring to ensure full implementation of all measures. In all instances where non-compliance occurs, the CPUC's designated environmental monitor will issue a warning to the construction foreman and PG&E's project manager. Continued non-compliance shall be reported to the CPUC's designated project manager. Any decisions to halt work due to non-compliance will be made by the CPUC. The CPUC's designated environmental monitor will keep a record of any incidents of non-compliance with mitigation measures, APMs, or other conditions of project approval. Copies of these documents shall be supplied to PG&E and the CPUC.

The CPUC will finalize the MMCRP in consultation with PG&E. Drafted language for the minor project modification and dispute resolution protocols are provided below.

4.2 MINOR PROJECT MODIFICATIONS

The CPUC Project Manager and the CPUC Monitoring Team will ensure that any process to consider minor project modifications that may be necessary due to final engineering or deviations from the procedures identified under the monitoring program are consistent with CEQA requirements. Project modifications cannot proceed if they would require ground-disturbing activities outside the geographic boundary of the project corridor or would create a new or substantially more severe significant impact. A minor project modification should be strictly limited to minor project changes that will not trigger other permit requirements, unless the appropriate agency has approved the change; that does not increase the severity of an impact or create a new impact without appropriate agency approval; and that complies with the intent of the mitigation measure.

A project modification that has the potential for creating significant environmental effects will be evaluated to determine whether supplemental California Environmental Quality Act (CEQA) review is required. Any proposed deviation from the approved project, adopted mitigation measures, APMs, and correction of such deviation, will be reported immediately to the CPUC Project Manager for their review. The CPUC Monitoring Team will review the minor project modification to ensure that all of the information required to review the minor project modification is included, and then forward the request to the CPUC Project Manager for review and concurrence that no additional CEQA evaluation is necessary. The CPUC Project Manager may request a site visit or may need additional information to verify that additional CEQA evaluation is not needed. Approval by other agencies may also be needed. A minor project

modification request, in general, must include the information listed below:

- Detailed description of the location, including maps, photos, and/or other supporting documents;
- How the minor project modification request deviates from a project requirement;
- Biological resources surveys or verification that no biological resources would be significantly impacted;
- Cultural resource surveys or verification that no cultural resources would be significantly impacted; and
- Agency approval (if necessary)

4.4 DISPUTE RESOLUTION

It is expected that the MMP will reduce or eliminate many potential disputes; however, disputes can occur even after the best preparation.

Issues should be first addressed at the field level informally between the CPUC environmental monitors and PG&E's monitors at the regular progress meetings. 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:

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.
2. Should the informal process in the field 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.
3. If a dispute or complaint regarding implementation or evaluation of the MMCRP 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 the decision and serve it to the filer and other affected participants.
4. If one or more of the affected parties is not satisfied with the decision described in the Executive Resolution, such party/ies may appeal the Executive Resolution to the CPUC via a procedure to be specified by the CPUC.

Parties may also seek CPUC review through 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 procedure described in this document.

Table 4.1-1: Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
Aesthetics			
Light and Glare	**APM AES-02: Use of Non-Reflective Conductors and Equipment.** Non-reflective 115 kV conductor (non-specular conductors) and insulators will be installed along the Northern Alignment and Cox-Freedom Segment to minimize the reflectivity and general visibility of the line.	Verify that conductors and insulators to be used are non-reflective prior to installation.	During construction
Existing Visual Character	**APM AES-03: Use of Self-Weathering Poles.** New and replacement tubular steel poles to be installed will be manufactured steel that will come pre-weathered with a rust color.	Verify that poles are pre-weathered with a rust color prior to pole installation.	During construction
Light and Glare	**APM AES-04: Nighttime Lighting Installation.** The new lighting at Rob Roy Substation will use non-glare or hooded fixtures, and will be directed to reduce spillover into areas outside the substation site and minimize the visibility of lighting from off-site locations.	Verify that lighting utilizes non-glare and hooded fixtures. Verify that lighting is directed to reduce spillover and reduce visibility.	During and after construction
Air Quality and Greenhouse Gases			
Construction Phase Air Quality	**APM AIR-01: Fugitive Dust Controls.** All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with non-toxic soil stabilizers at least two times per day or as needed to control fugitive dust.	Verify through on-site observation.	During construction
Biological Resources			
Special Status Species and Habitats	**APM BIO-08: On-Site Biological Monitoring.** Under the direction of the PG&E Project Biologist, a CPUC-approved biologist will be present at all active construction areas in biologically sensitive areas.	Verify through on-site observation.	During construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan

Impact	APMs/Mitigation Measures	Monitoring Requirement	Timing of Action
Special Status Wildlife	**APM BIO-09: Special-status Wildlife in the Project Areas.** If a special-status species is observed on site, crews will stop work as quickly as is safe to do so and will contact the CPUC-approved biologist. Crew members will not be permitted to touch, handle, or relocate special-status wildlife. Notification and reporting guidelines established in the MMCRP will be implemented. If there is no CPUC-approved biologist in the immediate area to document the resource observation, crews will contact the Environmental Compliance Manager and the PG&E Project Biologist.	Verify that special status species are avoided.	During construction
Special Status and General Wildlife	**APM BIO-10: Construction Site Speed Limits.** When safe to do so, a speed limit of 15 miles per hour will be observed on unpaved public access routes, and crews will maintain awareness for wildlife in the roadway. Travel on public roadways will be conducted according to established speed limits or as safety allows.	Verify that speed limits are obeyed in the field.	During construction
Avian Species	**APM BIO-13: Raptor Protection Guidelines for New Poles.** The majority of the project has been designed to conform to the suggested guidelines in the following documents: • Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 – APLIC, 1994 • Avian Protection Plan Guidelines – APLIC and USFWS, April 2005 • Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 – APLIC, 2006 The project's final design and installation will reflect these suggested guidelines; however, no 115 kV insulators have been manufactured that meet the recommended 71-inch horizontal phase to ground clearance guideline. As a result, the project will not reflect to this suggested guideline, which is not required to minimize significant effects.	Verify that final designs include the specifications listed.	Prior to construction
Special Status and General Wildlife	**APM BIO-18: Inspection of Construction Materials for Wildlife.** Before being moved, all poles and similar construction materials stored overnight at the construction site will be thoroughly inspected for animals. If special-status species are observed within poles or similar construction materials, they will be avoided and allowed to leave of their own volition.	Verify that construction materials are covered and that special status species are avoided.	During construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
Special Status and General Wildlife	**APM BIO-19: No Pets in the Project Area.** Crewmembers and project personnel will not be allowed to bring pets to the project area.	Verify that no pets are brought on-site.	During construction
Special Status and General Wildlife	**APM BIO-20: No Firearms in the Project Area.** Firearms will be prohibited in all work areas, unless carried by authorized security personnel.	Verify that no firearms are brought on-site.	During construction
Special Status and General Wildlife	**APM BIO-21: Garbage and Trash Management.** Littering will be prohibited. Food-related garbage and trash will be enclosed in covered, secured containers and removed from the project area as necessary, but no less than weekly. Storage yards, contractor yards, and other non-temporary work areas may use centralized areas to aggregate and store wastes.	Verify that garbage and trash is cleaned up.	During construction
Santa Cruz Long-toed Salamander	**APM BIO-29: Installation of Surface Barriers on Overland Access Roads.** When vehicles and other construction equipment are required to travel on designated overland routes to reach work sites within suitable upland habitat, determined per APM BIO-25, for Santa Cruz long-toed salamander, the CPUC-approved, qualified biologist will survey the route and flag all burrows and/or other potential refugia along the route for avoidance. If travel over burrows is determined unavoidable (e.g. no other route that can support vehicle travel is available due to space or topography constraints), a temporary surface barrier (e.g. plywood, steel plate, or fiberglass matting) will be placed over burrows immediately prior to using the overland access route in areas where practicable (based on topography, soil type, safety, etc.). The temporary surface barrier will be immediately removed at the end of each day (or sooner). If it is not practicable to place a temporary surface barrier or avoid the burrow within the overland route, no access will occur in these areas until the PG&E Project Biologist contacts USFWS, CDFW, and the CPUC for additional instructions and measures to be implemented that ensure no impacts to Santa Cruz long-toed salamanders.	Verify that routes with potential burrows are identified and surveyed prior to work in the areas. Verify that plates are installed, used, and removed according to the measure specifications.	Prior to and during construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
Monterey Spineflower	**Mitigation Measure Biology-1: Avoidance and Minimization of Impacts to Monterey Spineflower (Supersedes APM BIO-27).** Before construction begins and during the appropriate phenological periods, Monterey spineflower surveys shall be conducted by a CPUC-approved, qualified botanist in areas where they were previously identified or have the potential of occurring in project work areas (as shown in Initial Study Figures 3.4-3 and 3.4-4 and/or in the project GIS database). The surveys shall be limited to the construction right-of-way and publically accessible lands where PG&E has access rights. No work shall occur within areas of Critical Habitat for Monterey Spineflower. Agricultural fields and developed areas shall not be surveyed due to the lack of suitable habitat for supporting rare plant species. The boundaries of Monterey spineflower populations near project work areas, or the limits of project work areas or access roads/routes near Monterey spineflower populations that will be avoided shall be delineated with clearly visible flagging or fencing. The populations that will be impacted shall be recorded using a submeter-accurate global positioning system ("GPS") unit, and the total acreage of temporary and permanent impacts shall be calculated. In project work areas where Monterey spineflower is present, work shall be conducted in late summer or early fall to avoid impacting these plants before they have set seed, if feasible and only by a biologist appropriately permitted to collect seed. If this is not feasible and it is possible to collect seed prior to the start of construction, seed shall be collected from the Monterey spineflower individuals and shall be used during restoration following the completion of construction activities. If seed collection is not feasible all work areas occupied by the spineflower shall be protected by steel plates or plywood, which shall be removed as soon as construction activity in that area has been completed. Alternatively, a CPUC-approved, qualified biologist can proceed with the relocation of the spineflower to previously identified and approved locations. To mitigate for the anticipated loss of less than 0.1 acre of occupied Monterey spineflower habitat due to project related permanent impacts (such as pole installation), PG&E shall enhance habitat at a 1:1 ratio for Monterey spineflower by removing iceplant (*Carpobrotus spp.)* and other non-native plants, including European beach grass (*Ammophila arenaria*) at locations in	Verify that surveys are conducted in the appropriate time period by a qualified biologist. Verify that project plans do not include work within the small section of Critical Habitat within the project corridor. Verify that if seed collection is necessary, it is only collected under an appropriate permit by a qualified biologist Verify that restoration techniques or enhancement efforst are implemented and successful, if required.	Prior to, during, and after construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	which Monterey spineflower are present and disturbed by project activities and if property owners authorize the enhancement efforts. These efforts shall reduce non-native species coverage by 85% and invasive species coverage by 90% and shall be maintained for up to 1 year post-construction. Site maintenance activities shall be altered or intensified when necessary to meet performance criteria. Post-construction monitoring of areas previously occupied by spineflower and impacted by construction shall be conducted by a CPUC-approved, qualified biologist to ensure that the spineflower populations have recovered, are stable, and that the sites are not occupied by invasive species. If invasive species are encroaching on the sites, they shall be removed. If spineflower populations are not recovered comparable to pre-construction levels after 1 year, remedial actions shall be taken and may include broadcasting spineflower seed collected from plants in immediately adjacent areas, if available, or obtained from appropriate seed banks, and shallow soil disturbance (e.g., raking) to stimulate spineflower germination and establishment. Alternatively, PG&E shall identify, together with USFWS, Santa Cruz County and the CPUC, appropriate suitable sites where the enhancement efforts can be executed. An appropriate site may include areas within PG&E properties close to existing populations, such as at Rob Roy Substation. After removing invasive plants, the selected restoration area shall be seeded with Monterey spineflower seed collected from impacted plants (if available) or obtained from appropriate seed banks. A monitoring and reporting program shall be developed and approved by the CPUC to ensure compliance, which shall be detailed in the Revegetation, Restoration, and Monitoring Plan. The monitoring program shall include pre- and post-treatment vegetation sample plot surveys to record the percent cover of invasive plants and Monterey spineflower prior to and after treatment. The plots shall be surveyed during the appropriate phenological period for Monterey spineflower to allow for positive identification. Non-native and invasive weed cover shall be no more than 10% in the restoration plots. Monitoring shall be conducted for a period of 2 years. If the restoration is not successful after 2 years, PG&E shall consult with USFWS, Santa Cruz County, and CPUC to define alternative measures. Reporting frequency and content shall be addressed in the Revegetation, Restoration, and Monitoring Program.		

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan

Impact	APMs/Mitigation Measures	Monitoring Requirement	Timing of Action
Special Status Species Plants	**Mitigation Measure Biology-2: Site Restoration and Revegetation (Supersedes APM BIO-03).** PG&E shall prepare a Revegetation, Restoration, and Monitoring Plan prior to commencement to project construction that shall be submitted to the CPUC for approval. The plan shall include the requirements for • Impacts to Monterey spineflower identified in Mitigation Measure Biology-1 • Impacts to rare plants identified in Mitigation Measures Biology-5 • Tree removal identified in Mitigation Measure Biology-6 • Impacts to coastal scrub habitat as identified in Mitigation Measure Biology-17 The plan shall include the species or habitats that could be impacted, the replacement or restoration ratios (as appropriate), the restoration methods and techniques, and the monitoring periods and success criteria as identified in each measure.	Verify that the plan is prepared and includes the provisions of the listed mitigation. Verify that the plan is implemented	Prior to, during, and after construction
Special Status Species and Habitats	**Mitigation Measure Biology-3: Conduct Environmental Training for All Crewmembers (Supersedes APM BIO-05).** Conduct Environmental Training for All Crewmembers. An environmental training program shall be developed and presented to all crew members prior to the beginning of all construction associated with this project. The training shall describe special-status species and sensitive habitats that could occur within the project areas, protection afforded these species, and the avoidance and minimization measures required to avoid and/or minimize impacts on this project. Penalties for violations of environmental laws shall also be incorporated into the training session. Each crewmember shall be provided with an informational training handout and a decal to indicate that he/she has attended the training. The roles and responsibilities of the CPUC-approved biologists and other environmental representatives shall be identified in the Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) and discussed during the training. The environmental training described here shall include information about avoidance measures regarding the Santa Cruz long-toed salamander, its protected status, and the procedures to be followed in the event that the Santa Cruz long-toed salamander is observed during construction. All new	Review the environmental training program. Verify that all crew receive the training.	Prior to and during construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	construction personnel shall receive this training before beginning work on this project. A copy of the training and training materials shall be provided to the CPUC at least 30 days prior to the start of construction. Training logs and sign-in sheets shall be provided to CPUC on a monthly basis. As needed, infield training shall be provided to new on-site construction personnel by the environmental compliance supervisor or a qualified individual who shall be identified by the PG&E's Project Biologist, or initial training shall be recorded and replayed for new personnel.		
Special Status Species and Habitats	**Mitigation Measure Biology-4: Minimize Noxious Weeds.** Precautions shall be taken to minimize the introduction of any invasive weeds. Construction equipment shall be clean before it arrives at work areas in the project corridor. Any landscaping involving vegetation other than trees and/or shrubs shall consist of native seed mix or other ecologically appropriate, non-invasive, plants. Only weed-free straw or mulch shall be used.	Verify that equipment is cleaned and that landscaping does not include non-native species.	During construction
Special Status Plants	**Mitigation Measure Biology-5: Avoidance and Minimization of Impacts to Special-Status Plant Populations (Supersedes APM BIO-04)**. If rare plants other than Monterey spineflower (which is addressed in Mitigation Measure Biology-1), but including robust spineflower, Santa Cruz tarplant, Kellog's horkelia, and Gairdners yampah, are identified within proposed work areas through surveys conducted by a CPUC-approved, qualified botanist, they shall be flagged and avoided, if feasible. If avoidance is not feasible and impacts to the individuals would occur as a result of work activities, the impacts shall be documented and addressed through the implementation of the Revegetation, Restoration, and Monitoring Plan. The plan shall require 1:1 restoration for any impacted rare plants and shall include a 2- year minimum monitoring period to ensure successful regermination of the rare plant. The plan shall also include success/performance criteria. Measureable, quantitative success/performance criteria to determine the success of mitigation for each rare plant species include: the establishment of self-sustaining populations within naturally functioning and regenerating habitat; size and density of the rare plant populations similar to the reference populations; no more than 15 percent relative cover of non-native species, and no more than 10 percent relative cover of invasive species (e.g., ice	Verify that surveys are conducted in the appropriate time period by a qualified biologist. Verify that restoration techniques or enhancement efforst are implemented and successful, if required.	Prior to, during, and after construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	plant, European beach grass, and pampas grass). If success is not reached within two years, PG&E shall consult with appropriate resource agencies (based on status and listing), Santa Cruz County, and CPUC to define alternative measures.		
Special Status Species and Habitats	**Mitigation Measure Biology-6: Tree Removal and Replacement.** The Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2) shall address removal and compensatory replacement of special status tree species, including oak species and Monterey pine. The Revegetation, Restoration, and Monitoring plan shall include the following minimum elements that address these species: • Identification of species, size, and locations of all oak species and Monterey pine to be removed, preferably in a GIS layer • Species, size, and locations of all replacement plantings • Tree planting detail (provisions for adequate drainage, location, and spacing of replanted trees) • Planting schedule • Agreement with proper authority regarding location of replanting (e.g., written permission from jurisdiction to replant on that jurisdiction's land, or landowner) • Monitoring requirements to ensure success of the trees and contingency measures if trees are not successful. Both tree species should be monitored for at least three years Oaks and Monterey pine shall be replaced as described in the following table.	Verify that the plan includes the listed provisions. Verify that the appropriate number of trees is identified for replacement and that locations are identified or another fund is identified through Santa Cruz County.	Prior to, during and after construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan

Impact	APMs/Mitigation Measures	Monitoring Requirement	Timing of Action
	If tree replacement on-site is not possible due to constraints such as lack of property owner consent, incompatibility with regulatory clearance requirements, or some other similar constraint, PG&E shall consult with Santa Cruz County to fund appropriate organizations for offsite tree replacement. **Mitigation for removal of oak trees of any size** Oak: Replacement ranges from 1:1 for saplings to 10:1 for large oaks; replacement should be of the same species of oak as removed. Replacement ratios shall be determined by the CPUC-approved, qualified biologist (or arborist), depending on the size and health of each tree removed. **Mitigation for removal of Monterey pine** Monterey Pine: Individual specimens of Monterey pine less than 6 inches shall be relocated; specimens over 6 inches and under 24 inches diameter that are proposed for removal shall either be relocated or replanted at a 5:1 ratio Individual trees greater than 24 inches diameter shall be replaced at 10:1.		
Santa Cruz Long-toed Salamander	**Mitigation Measure Biology-7: Seasonal Ground Disturbance Windows (Supersedes APM BIO-25).** Project related ground disturbance activities shall not take place in Santa Cruz long-toed salamander upland habitat or dispersal habitat within 1 mile of a known or potential breeding pond during the local rainy season (typically between October 15 and April 15 or as outlined by the local precipitation data available at NOAA National Weather Service's website http://www.weather.gov/) to avoid affecting Santa Cruz long-toed salamander during their breeding migration or during outward-bound dispersal of post-metamorphic juveniles. The seasonal restriction does not apply to locations that are within 1 mile of a known or potential breeding pond but do not support upland habitat or dispersal habitat for the salamander such as paved areas and agricultural fields. The locations for which the seasonal restriction does not apply shall be identified with supporting documentation submitted to the CPUC for approval.	Verify that seasonal construction periods are enforced in Santa Cruz long-toed salamander habitat. Verify that the locations of seasonal restrictions are identified. Verify that fencing is installed and maintained for work in areas of dispersal or upland habitat if work extends into the next migration season.	During construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan

Impact	APMs/Mitigation Measures	Monitoring Requirement	Timing of Action
	Fencing. If construction is anticipated to extend past the beginning of the local rainy season, non-ground disturbing work within the work areas supporting dispersal and upland habitat for the salamander shall only be allowed if an exclusion fence is in place prior to the first significant rainfall (0.25 inches or greater) and no later than October 15th. Fencing shall remain in place until activities at a particular site are completed. During construction, the CPUC-approved, qualified biologist shall check the fence at each location on at least a weekly basis for presence of wildlife and for integrity of the fence. If a salamander is observed in project work areas, crews shall stop work within the specific work area as quickly as is safe to do so and shall immediately contact the Environmental Compliance Manager and the PG&E Project Biologist. Work shall not commence within the specific location of the siting until the completion of consultation with USFWS and CDFW and all impacts to Santa Cruz long-toed salamander can be avoided.	Verify that work is stopped and agencies consulted if a salamander is found.	
Santa Cruz Long-toed Salamander	**Mitigation Measure Biology-8: Limiting Vegetation and Tree Removal (Supersedes APM BIO-26).** For all sites west of Corralitos Creek, including those within 1 mile of a known or potential Santa Cruz long-toed salamander breeding ponds, all clearing of vegetation shall occur under the supervision of the CPUC-approved, qualified biologist to ensure that adjacent habitat is not unnecessarily removed and no impacts occur to Santa Cruz long-toed salamander. The CPUC-approved biologist shall conduct a pre-activity survey for special status species, ensure that the access routes are surveyed to avoid crushing wildlife, and limit the vegetation removal to the minimum amount necessary to complete the work. Clearing of vegetation west of Corralitos Creek shall be performed by hand (chain-saws and similar hand equipment are acceptable) without the use of heavy equipment. In addition, clearing of vegetation (including tree removal) in these areas west of Corralitos Creek shall not occur during the rainy season (typically between October 15 and April 15 or as outlined by the local precipitation data available at NOAA National Weather Service's website http://www.weather.gov/), when Santa Cruz long-toed salamander are more likely to be at or near the surface. The trees removed (number of trees, diameter at breast height, species, and location) shall be documented and addressed in the Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2).	Verify that a biologist is on-site for work within Santa Cruz long-toed salamander habitat. Verify that pre-activity surveys are completed. Verify that no vegetation clearing or tree removal occurs during the rainy season in Santa Cruz long-toed salamander habitat.	Prior to and during construction.

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
Santa Cruz Long-toed Salamander	**Mitigation Measure Biology-9: Working in Santa Cruz Long-toed Salamander Habitat (Supersedes APM BIO-07).** Construction that could harm Santa Cruz long-toed salamander (e.g., staging of heavy equipment and materials, grading, excavation) within work areas where suitable upland habitat occurs (or any additional suitable upland habitat areas identified prior to construction) as defined in Mitigation Measure Biology-7, shall only be allowed if Santa Cruz long-toed salamanders have been excluded from the area during the rainy/dispersal season prior to construction. If work areas need to be expanded in suitable upland habitat areas where salamander has not been previously excluded, only non-ground disturbing activities (i.e., no excavation) shall be allowed in these areas. The CPUC-approved, qualified biologist shall survey the expansion areas and flag all burrows and/or other potential refugia for avoidance. If burrows are unavoidable (e.g., no other space that can support vehicles or equipment is available due to space or topography constraints), a temporary surface barrier (e.g. plywood, steel plate, or fiberglass matting) shall be placed over burrows immediately prior to using the expanded work area, where practicable (based on topography, soil type, safety, etc.). The temporary surface barrier shall be immediately removed at the end of each day (or sooner). If it is not practicable to place a temporary surface barrier or avoid the burrow within the expanded work area, no work that could harm Santa Cruz long-toed salamander (e.g., staging of heavy equipment and materials, grading, excavation) shall be allowed in these areas until the PG&E Project Biologist contacts USFWS, CDFW, and the CPUC for additional instructions and measures to be implemented that ensure no impacts to Santa Cruz long-toed salamanders. Under no circumstances shall the salamanders be handled. Vegetation and tree removal in Santa Cruz long-toed salamander habitat is addressed in Mitigation Measure Biology-8.	Verify that no work occurs between sunset and sunrise in Santa Cruz long-toed salamander habitat unless the conditions specified in the measure are met.	During construction
Santa Cruz Long-toed Salamander	**Mitigation Measure Biology-10: Habitat Restoration of Disturbed Work Areas in Santa Cruz Long-toed Salamander Habitat (Supersedes APM BIO-28).** Habitat restoration of disturbed work areas within suitable upland habitat or dispersal habitat for the Santa Cruz long-toed salamander shall be required. Habitat restoration shall include, but not be limited to, reseeding and restoring construction areas to pre-construction conditions with native species. Areas shall be monitored for one year to ensure that invasive species do not overtake native species growth. If invasive species are found, they shall be	Verify that areas requiring habitat restoration are identified in the plan. Verify that areas are restored and enhanced for Santa Cruz long-toed salamander.	Prior to and after construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	removed. Woody debris, leaf litter, and other natural materials used as refugia for migrating salamanders shall be restored or replaced after construction is complete in areas where it was cleared prior to construction. The debris should be stockpiled during clearing for later use. Habitat restoration efforts shall be identified in the Revegetation, Restoration, and Monitoring Plan (Mitigation Measure Biology-2).		
Nesting Birds	**Mitigation Measure Biology-11: Nesting Birds (Supersedes APM BIO-12).** This measure applies to all work areas in which construction related activities are to be conducted during the nesting bird season (generally between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions). Tree removal activities should be conducted outside of the nesting bird season. If trees are to be removed during the nesting season, the trees and surrounding area shall be surveyed following the provisions listed below. ***Survey Requirements***. If work is scheduled to occur during the avian nesting season, nesting bird surveys shall be conducted according to the following provisions: • Surveys shall occur within 7 days prior to the start of ground-disturbing construction or vegetation trimming or removal activities. If there is no work in an area for 7 days, it shall be considered a new work area if construction or vegetation trimming or removal begins again. • Surveys shall be conducted with sufficient survey duration and intensity of efforts necessary for the identification of active nests (including nests of protected species) within trees identified for removal and/or pruning , and within a 500 foot buffer; surveys for tree pruning or removal work are to be completed within 48 hours of work beginning • Surveys shall be conducted during locally appropriate dates for nesting seasons; note that generally the season is between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions • The surveys shall be conducted by a CPUC approved, qualified biologist; • Provisions for addressing nesting bald eagles, including a 0.5-mile survey area to be implemented within areas with suitable habitat for nesting bald eagles • Survey results shall be made available to the CPUC	Verify that surveys are conducted prior to conducting work in areas with potential for nesting birds. Verify that buffers are established, reduced buffers are approved, and that all buffers are maintained during construction. Review reports to ensure that measure was implemented.	Prior to and during construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	• Work areas within which significant noise is not generated, such as work performed manually, by hand or on foot and/or that would not cause significant disturbances to nesting birds (e.g., operating switches, driving on access roads, normally occurring activities at substations, staging and laydown areas) do not need to be surveyed prior to use. None of these activities shall result in physical contact with a nest. ***Avoid impacts on nesting birds***. During the nesting season (generally between February 15th and August 31st but may be earlier or later depending on species, location, and weather conditions) trees with raptor nests that fall within a 500 feet buffer from a work location, shall be evaluated by a CPUC-approved, qualified biologist to determine, whether the raptor nest is "active". No trees with active raptor nests shall be removed during nesting season. No additional measures shall be implemented if active nests are more than the following distances from the nearest work areas: a) 500 feet for raptors, or (b) 250 feet for passerine birds in rural areas (c) 50 feet for common (non-special status) passerine birds in residential, commercial, and industrial areas. Buffers shall not apply to construction-related traffic using existing roads where the use of such roads is not limited to project-specific use (i.e., county roads, highways, farm or other private roads). As appropriate, exclusion techniques may be used for any construction equipment that is left unattended for more than 24 hours to reduce the possibility of birds nesting in the construction equipment. An example of an exclusion technique is covering equipment with tarps. ***Buffer reduction***. The specified buffer sizes for birds may be reduced on a case-by-case basis if, based on compelling biological or ecological reasoning (e.g. the biology of the bird species, concealment of the nest site by topography, land use type, vegetation, and level of project activity, level of pre-existing disturbance on site), it is determined by a CPUC-approved, qualified biologist that implementation of a specified smaller buffer distance shall still avoid project-related "take" (as defined by Fish and Game Code Section 86). Requests to reduce standard buffers must be submitted to the CPUC's independent biologist(s) for review. Requests to reduce buffers must include: species, location, pre-existing conditions present on-site, description		

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	of the work to be conducted within the reduced buffer, size and expected duration of proposed buffer reduction, reason for the buffer reduction, the name and contact information of the CPUC approved, qualified biologist(s) who request the buffer reduction and shall conduct subsequent monitoring, and the proposed frequency and methods of monitoring necessary for the nest given the type of bird and surrounding conditions. The CPUC's independent biologist shall respond to PG&E's request for a buffer reduction (and buffer reduction terms) within one business day; if a response is not received, PG&E can proceed with the buffer reduction, until the CPUC's independent biologist can review and approve the buffer reduction request. Non-special status species found building nests within the work areas after specific project activities begin, may be tolerant of that specific project activity; however, the CPUC approved, qualified biologist shall implement an appropriate buffer or other appropriate measures to protect the nest, after taking into consideration the position of the nest, the bird species nesting on site, the type of work to be conducted and duration of the construction disturbance. In these cases, the proposed buffer or other measures must be approved by the CPUC's independent biologist through the buffer reduction process outlined in this measure, if buffers are less than those specified in this measure. These nests shall be monitored on a daily basis and only during construction activities (no monitoring required over weekends or periods when no work is conducted) by a CPUC-approved, qualified biologist until the CPUC-approved, qualified biologist has determined that the young have fledged, or construction ends within the work area (whichever occurs first). If the CPUC-approved, qualified biologist determines that the nesting bird(s) are not tolerant of project activity, the buffer outlined above in this measure shall be implemented. If nesting birds show signs of intolerance to construction activities within a reduced buffer zone, the CPUC-approved, qualified biologist shall reinstate the recommended buffers. The recommended buffers may only be reduced again following the same process, as identified above, and after the CPUC-approved, qualified biologist has determined that the nesting birds are no longer exhibiting signs of intolerance to construction activities.		

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	Monitoring and reporting. All nests with a reduced buffer shall be monitored on a daily basis during construction activities by a CPUC-approved, qualified biologist until the CPUC approved, qualified biologist has determined that the young have fledged, or construction ends within the reduced buffer/work area (whichever occurs first). Nest locations and exclusion buffers shall be mapped (using GIS) for all nests identified. This information shall be maintained in a database and shall be provided to the CPUC. A monthly written report shall be submitted to the CPUC for construction within a reduced buffer and shall include the following: information included in buffer reduction requests, work conducted within the work site, duration of work activities and related buffer reduction, information on nest success (eggs, young and adults). No avian reporting shall be required for construction occurring outside of the nesting season and if construction activities do not occur within a reduced buffer during any calendar month. A final report shall be submitted to the CPUC at the end of each nesting season summarizing all avian related monitoring results and outcomes for the duration of project construction. Nests located in areas of existing human presence and disturbance, such as in yards of private residences, or within commercial and or industrial properties are likely acclimated to disturbance and do not need to be monitored, as determined by the CPUC approved, qualified biologist and approved by the CPUC's independent biologist.		
Nesting Bald and Golden Eagles	**Mitigation Measure Biology-12**: **Nesting Bald and Golden Eagles (Supersedes APMs BIO-12 and 12A).** Construction activities are anticipated to occur during the nesting season for bald and golden eagles (eagles) (generally from January 15 through August 31). A CPUC approved, qualified biologist shall conduct nesting bird preconstruction surveys, as defined in Mitigation Measure Biology-12, for all construction activities that shall occur during the nesting season and within 0.5 mile of known eagle nest locations. Surveys shall be conducted for a distance of 0.5 mile from all project work areas (including staging areas, pull sites, and areas were access road improvements and/or ground disturbance is required). The frequency of the surveys and monitoring shall follow USFWS and CDFW recommendations and protocols (e.g. USFWS Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations [Pagel et al. 2010] and CDFW Bald Eagle breeding and nesting survey instructions) and shall take into consideration landscape	Verify that surveys are conducted prior to conducting work in areas with potential for bald and golden eagle nesting. Verify that buffers are established, reduced buffers are approved, and that all buffers are maintained during construction. Verify that helicopter use does not occur within 0.5 miles of active nests.	Prior to and during construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	characteristics, nest location and visibility, and status of the nest. Helicopters may be used to conduct aerial surveys to document nests up to 0.5 mile from project work areas; otherwise, surveys can be conducted from observation points within construction right-of-ways and publicly accessible lands where PG&E has access rights. Where physical access to an area is unavailable, alternate, appropriate survey techniques should be used to compensate for limited physical access. Helicopter surveys, if needed, shall be appropriately scheduled to occur during different phases of the eagle nesting season and follow-up terrestrial surveys shall be conducted of nests observed by aerial survey, if needed, where accessible and in accordance with the instructions provided by USFWS/CDFW published guidance documents and instructions. Subsequent follow up surveys shall be conducted (if needed) to check on the status of each nest. If no active eagle nests are detected, no additional measures are required.If active bald or golden eagle nests are detected in areas exposed to urban-related disturbances (e.g. air, vehicle, and pedestrian traffic, loud community events, parks, agricultural or farm lands in which farm equipment is generally operated, industrial settings), a 0.25 mile buffer shall be established around the nest. At the discretion of the CPUC-approved qualified biologist, the buffer area may be increased around active eagle nests detected in more rural or undisturbed environments. Buffer reductions for work within 0.25 miles of a bald or golden eagle nest shall follow the requirements identified in Mitigation Measure Biology-12; however, buffer reductions for bald and golden eagles must also be approved by CDFW and/or USFWS. If construction activities are approved by CPUC, CDFW and USFWS to be conducted within a reduced buffer, monitoring of active eagle nests shall take into considerations aspects such as landscape characteristics, nest location, and visibility of the nest and shall follow guidance and instructions provided by USFWS/CDFW published guidance documents and instructions. Per Mitigation Measure Biology-12, monitoring requirements shall be submitted with the buffer reduction request. Use of helicopters shall be limited, to the extent practicable, to trips necessary to deliver, install and/or remove towers, poles, conductor, and tower/pole related equipment. Helicopter flight paths shall be developed to minimize and avoid impacts to eagle nests identified during project preconstruction surveys		

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	and shall not occur within 0.5 miles of an active eagle nests unless the nest occurs within less than 0.5 miles from planned and regularly occurring helicopter flight paths from the existing airport. If the active nest occurs within 0.5 miles of a planned and regularly used flight path from the existing airport, PG&E shall coordinate with local air traffic controllers to either use existing flight paths and/or adjust flight paths to a route that is consistent with all project requirements and avoids impacts to the nesting bald eagles; the CPUC shall be notified when this occurs.		
White-tailed Kite	**Mitigation Measure Biology-13: White Tailed Kite.** A qualified biologist shall conduct pre-construction surveys for white tailed kite within ¼ mile of project construction activities, within 7 days of the start of construction. Surveys can be conducted from observation points within construction right-of-ways and publically accessible lands where PG&E has access rights. Where physical access to the entire survey area is unavailable, alternate, appropriate survey techniques shall be used to compensate for limited physical access. If any construction activities are planned during the nesting season (for this species approximately February 1 through August 31), avoidance measures shall include a no-construction buffer zone of a minimum distance of ¼ mile. If occupied nests are closer than this distance to the nearest work site, consultation with CPUC and CDFW shall be required to discuss how to implement the project and species avoidance measures to avoid "take."	Verify that surveys are conducted prior to conducting work in areas with potential for nesting birds. Verify that buffers are established and maintained during construction or else CDFW and CPUC are contacted.	Prior to and during construction
Bats	**Mitigation Measure Biology-14. Avoidance of Roosting Bats (Supersedes APM BIO-15).** ***Work Areas.*** Suitable bat habitat shall be assessed by a CPUC-approved, qualified biologist, in trees within a 50-foot buffer of active work areas, and in structures with suitable bat habitat within a 100-foot buffer of active work areas. If roosting habitat is found in a tree or structure, the CPUC-approved, qualified biologist shall define an appropriate limited or no work exclusion area surrounding the roosting habitat based on the bat species, numbers, and roost type (i.e., individuals, small group, potential maternal colony) as well as in consideration of the habitat quality and duration of work related disturbance. The limited work or exclusion areas shall be approved by the CPUC's independent biologist who shall respond to PG&E's request for approval within one business day; if a response is not received, PG&E can proceed with the implementation of the proposed limited work or exclusion	Verify that appropriate surveys by a qualified biologist are conducted for bat roosting habitat near work areas and trees for removal. Verify that limited work or exclusion areas are established and maintained. Verify that tree trimming occurs in accordance with the provisions of the measure in areas of potential bat roosting habitat.	Prior to and during construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	area, until the CPUC's independent biologist can review and approve the buffer reduction request. The limited work or exclusion area shall not apply to construction-related traffic using existing roads where the use of such roads is not limited to project-specific use (i.e., county roads, highways, farm or other private roads, etc.) and does not apply if the roost(s) is/are located in a residential, commercial or industrial area The boundaries of the limited or no work area shall be clearly marked by the CPUC approved, qualified biologist to ensure that no vehicles or equipment physically disturb the roost. The CPUC approved, qualified biologist shall inspect roost sites when construction is occurring at the specific work site, to ensure integrity of the limited or no work area, and ensure that the size of the area is adequate based on site conditions and construction generated noise. ***Tree Pruning and Removal***. Pre-construction habitat assessments shall be conducted by a CPUC-approved, qualified biologist on all trees to be removed that are 10 inches or above in diameter at breast height (dbh) to identify suitable roosting habitat, within seven (7) days of the tree removal date. For trees to be removed that provide suitable roosting habitat features, follow-up emergence surveys and acoustic monitoring shall be conducted for one half hour prior to sunset and one hour after sunset. If bats are not detected emerging from trees and acoustic activity indicates that no roosting bats are present, no additional measures are required. If bats are detected emerging from trees or acoustic activity indicates that roosting bats are present, the potential presence of a maternal colony shall be assessed. If a maternal colony is found in a tree, no work shall occur within 50 feet of the tree. Suitable roost trees shall be removed, to the extent practicable, outside of April to September to avoid impacts to reproductive bats. If vegetation-removal activities shall be conducted during the bat reproductive season the	Review reports to ensure that measure was implemented.	

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	following techniques shall be implemented to passively vacate bats from roosts: • Trim off all limbs without roost features to alter the air flow and temperature around the roost feature thus encouraging bats to vacate roost features on their own. The tree shall then be left for about 24 hours to allow for the bats to move to another roost site. • Create noise and vibration disturbance on the tree (e.g., concussive hitting with equipment and/or chainsaw cutting) for at least 15 minutes before carefully opening up potential crevices and cavities for inspection and clearance. • If bats may be in a tree bole or heavy branch cavity, attempt to expose them and allow escape. For example, if the cavity cannot be investigated by the CPUC approved, qualified biologist, then carefully cut successive sections above the cavity to open it, waiting up to 10 minutes in between each cut, and determine if it is empty or allow any bats inside to crawl or fly out. ***Reporting.*** All bat roosts in trees will be documented and reported through the Mitigation Monitoring, Compliance and Reporting Program (MMCRP).		
Dusky-footed Woodrat	**Mitigation Measure Biology-15: Avoidance and Minimization of Impacts to San Francisco Dusky-footed Woodrat (Supersedes APM BIO-16).** A CPUC approved, qualified biologist shall conduct a pre-construction survey to identify potential San Francisco dusky-footed woodrat houses within the proposed project work areas and within 5 feet of the edge of the work areas in order to avoid direct take of woodrats. Woodrat houses found within the work site or within 5 feet from a work site shall be flagged or fenced for avoidance. If impacts to a woodrat house located within a work site are unavoidable, a CPUC-approved, qualified biologist, prior to construction and outside of breeding season (April through June), shall dismantle the house by hand, removing the materials layer by layer to allow for adult woodrats to escape. If young are present and found during the disassembling process, a CPUC-approved, qualified biologist shall leave the site for at least 24 hours to allow for the rats to relocate their young on their own. This step shall be repeated as needed until the young have been relocated by the parent woodrats. Once the nest is vacant, the disassembly process shall be	Verify that appropriate surveys by a qualified biologist are conducted for dusky-footed woodrat houses. Verify that houses identified are flagged and avoided if possible, or else dismantled in accordance with the provisions of the measure.	Prior to and during construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	completed and the nest sticks shall be collected and moved to another suitable close-by location to allow for nest reconstruction. Piles of cut vegetation/slash shall be retained near the work site prior to nest dismantling, to provide refuge for woodrats that may become displaced (Lee and Tietje 2005).		
Coastal Scrub	**Mitigation Measure Biology-16: Avoidance and Minimization of Impacts to Coastal Scrub (Supersedes APM BIO-22)**. Before construction begins, the boundaries of coastal scrub located within work areas shall be delineated with clearly visible flagging or fencing, or otherwise marked for avoidance. The flagging, fencing, and/or other marking shall be maintained in place for the duration of construction at each location until work is completed at that site, and these areas shall be avoided. If any coastal scrub habitat cannot be avoided, the CPUC-approved, qualified biologist shall conduct a pre-activity survey to ensure no listed or protected species are present and shall then provide guidance to the crew concerning additional measures that may be required to conduct the work. Impacts and disturbance to coastal scrub occurring as a result of work activities shall be documented and addressed through the implementation of the Revegetation, Restoration, and Monitoring Plan. Coastal scrub habitat areas that are permanently disturbed by the project shall be replaced off-site with new habitat at a 2:1 ratio by funding one or more recognized and County approved re-vegetation/restoration organizations. Alternatively, the losses of Coastal scrub shall be compensated for by enhancement of existing habitat (e.g., through removal of non-native species from existing coastal scrub habitat) at a 3:1 ratio within suitable habitat on properties for which PG&E can obtain property owner consent and within suitable habitat on PG&E's properties in the area(e.g. Rob Roy Substation). PG&E shall begin the removal of non-native and invasive species from PG&E suitable habitat in the 1 or 2 years prior to construction commencement to initiate the enhancement efforts. These efforts shall then continue together with regular monitoring until non-native and invasive species have been reduced by 70% from initial conditions, up to a maximum period of 2 years following the end of construction activities. If non-native and invasive species removal efforts have not met the success criteria of 70%	Verify that the boundaries of impacted coastal scrub are identified and delineated. Verify that the areas are avoided or else surveyed for special status species and impacts addressed in the Revegetation, Restoration, and Monitoring Plan. Verify that restoration is implemented and monitored in accordance with the provisions of the measure.	Prior to, during, and after construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	reduction by the end of the two year monitoring period, PG&E shall coordinate with CPUC and the County to determine alternative measures (e.g., development of educational materials/programs, signage, etc.). Coastal scrub areas within suitable upland habitat for the Santa Cruz long-toed salamander that support burrows and are located outside of a previously identified and fenced work area shall not be disturbed during construction activities.		
Special Status and General Wildlife	**Mitigation Measure Biology-17: Protection and Inspection of Open Excavations for Entrapped Wildlife (Supersedes APM BIO-17).** Excavations that may act as pitfall traps (i.e., those exceeding 6 inches in depth) shall be secured in one of the following ways to ensure that animals do not become entrapped: • Covers may be used to completely cover exposed holes; Covers shall be strong enough to prevent wildlife from falling into the excavations and shall be secured to prevent burrowing underneath the covers. • Fencing may be used; in biologically sensitive areas, the fences around excavations shall provide one way passage for small animals to exit the immediate work area • Escape ramps may be used for excavations greater than 6 inches in depth • Existing pole excavations shall be inspected before they are filled to ensure the absence of wildlife. If a special-status species is located in the excavation and cannot escape, the CPUC approved, qualified biologist shall safely stop all construction activities in the immediate work area. The PG&E Project Biologist shall contact CDFW and/or USFWS (as appropriate, depending on the species' listing status) and PG&E shall comply with the recommendations provided by the resource agencies. If guidance from the resource agency cannot be obtained immediately, the CPUC approved, qualified biologist shall ensure that the species does not suffer any distress by implementing measures such as: • Provide appropriate shade coverage • Protect from/avoid sun and heat exposure • Avoid the generation of human related disturbance within proximity to the species location	Verify that construction excavations are covered daily, fenced, or a ramp is installed to avoid entrapment of wildlife Verify that special status species are not harmed and that the CDFW or USFWS is contacted, as appropriate.	During construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan

Impact	APMs/Mitigation Measures	Monitoring Requirement	Timing of Action
	• Protect from possible predation • For amphibians - provide a moist environment through the use of wet sponges or locally found wet moss		
Cultural Resources			
Known and Previously Undiscovered Cultural Resources	**APM CUL-01: Personnel Training.** Prior to construction, all PG&E, contractor, and subcontractor project personnel will receive training regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures and to comply with the applicable environmental laws and regulations, including the potential for exposing subsurface cultural resources and paleontological resources and how to recognize possible buried resources. This training will include a presentation of the procedures to be followed upon discovery or suspected discovery of archaeological materials, including Native American remains and their treatment, as well as of paleontological resources.	Verify training through inspection of training log. Spot check workers on site for sticker showing completion of training.	Prior to and during construction
Known Cultural Resources	**Mitigation Measure Cultural Resources-1:** Prior to commencement of construction, the limits of the project work areas within 165 feet (50 meters) of any known potentially eligible resources (sites HR-3 [Kliewer barns], HR-5 [1909 single-family home], HR-12 [Corralitos Road Italianate home], HR-14 [Apple barn], and HR-15 [Day Valley Cemetery]) shall be marked with visible flagging tape or equivalent. The construction crews shall be instructed that no vehicle access, travel, equipment staging, storage, or other construction-related work shall occur outside the flagged areas to ensure that known historic resources are not inadvertently damaged during implementation of the project.	Review cultural resources report to identify listed resources. Verify that sensitive resource areas have been flagged prior to activities beginning near resources	Prior to and during construction
Previously Undiscovered Cultural Resources	**Mitigation Measure Cultural Resources-2:** Prior to commencement of construction within any project area, the appropriate PG&E personnel shall compare areas of proposed ground disturbance with the project GIS layers that show cultural resource survey areas. PG&E shall verify that proposed ground disturbance areas have been surveyed for cultural resources. If the areas of proposed ground disturbance have been surveyed (and no known resources are located in the area), then no additional measures are required and the work may commence.	Review cultural resources maps against planned areas of activities to ensure that area has been surveyed for cultural resources. Verify that cultural resource specialist/ archaeologist/historian has evaluated any found resources	Prior to construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	If the areas have not been surveyed, no ground disturbance shall be permitted prior to completion of surveys by a CPUC-approved, qualified cultural resource specialist/archaeologist or historian. If a resource is found, it shall be evaluated by the qualified cultural resource specialist/archaeologist or historian to determine whether it is (1) eligible for the CRHR (and thus an historical resource for purposes of CEQA); or (2) a unique archaeological resource as defined by CEQA. If the resource is determined to be neither a unique archaeological nor an historical resource, work may commence in the area. If the resource meets the criteria for either an historical or unique archaeological resource, or both, work shall remain halted, and the cultural resource specialist/archaeologist or historian shall consult with CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). Preservation in place, i.e. avoidance, is the preferred method of mitigation for impacts to cultural resources and shall be required unless there are other equally effective methods. If any found resources can be completely avoided, then evaluation of the resource is not required, subject to approval by CPUC. Other methods to be considered shall include evaluation, collection, recordation, and analysis of any significant cultural materials in accordance with a Cultural Resources Management Plan prepared by the CPUC-approved, qualified cultural resource specialist/archaeologist or historian. The methods and results of evaluation or data recovery work at an archaeological or historic find shall be documented in a professional level technical report to be filed with CHRIS. Work may commence upon completion of treatment, as approved by the CPUC.	and that his/her recommendations have been followed for preventing a substantial adverse change to the significance of the resource. Verify that a report has been prepared and filed with CHRIS if a resource is found.	
Previously Undiscovered Cultural Resources	**Mitigation Measure Cultural Resources-3:** In the unlikely event that a previously unidentified buried archaeological resource is uncovered during implementation of the project, all work within 165 feet (50 meters) of the discovery shall be halted. A CPUC-approved, qualified cultural resource specialist/archaeologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, the resource shall be documented on California State Department of Parks and Recreation cultural resource record forms and no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, the CPUC-approved cultural resource	Verify halt of construction activities and appropriate notification of agencies through documentation and on-site observations. Verify submittal of paperwork to California State Department of Parks if resource can be avoided. Verify evaluation of resource if resource cannot be avoided.	During construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	specialist/archaeologist shall evaluate the resource and determine whether it is (1) eligible for the CRHR (and thus a historical resource for purposes of CEQA); or (2) a unique archaeological resource as defined by CEQA. If the resource is determined to be neither a unique archaeological nor an historical resource, work may commence in the area. If the resource is meets the criteria for either an historical or unique archaeological resource, or both, work shall remain halted, and the cultural resources specialist/archaeologist shall consult with CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). Preservation in place, i.e. avoidance, is the preferred method of mitigation for impacts to cultural resources and shall be required unless there are other equally effective methods. Other methods to be considered shall include evaluation, collection, recordation, and analysis of any significant cultural materials in accordance with a Cultural Resources Work Management Plan prepared by the CPUC approved qualified cultural resource specialist/archaeologist. The methods and results of evaluation or data recovery work at an archaeological find shall be documented in a professional level technical report to be filed with CHRIS. Work may commence upon completion of treatment, as approved by the CPUC.	Verify preparation of Cultural Resource Management Plan through inspection of documentation, and verify with cultural resource specialist/archaeologist that the plan was carried out and that the technical report was prepared and filed with CHRIS.	
Previously Undiscovered Paleontological Resources	**Mitigation Measure Paleontology-1:** In the unlikely event that a previously unidentified paleontological resource is uncovered during implementation of the project, all ground disturbing work within 165 feet (50 meters) of the discovery shall be halted. A CPUC-approved, qualified paleontologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified, CPUC-approved paleontologist shall evaluate the resource and determine whether it is "unique" under CEQA, Appendix G, part V. If the resource is determined to not be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the paleontologist shall consult with the property owner and CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA. Preservation in place, i.e. avoidance, is the preferred method of mitigation for impacts to paleontological resources and	Verify that construction activities have stopped if a resource is uncovered. If the resource cannot be avoided, verify with the paleontologist that the protocol has been followed.	During construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	shall be required unless there are other equally effective methods. Other methods, with the permission of the property owner, include ensuring that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of a qualified paleontologist. All recovered fossils shall be curated at an accredited and permanent scientific institution according to Society of Vertebrate Paleontology standard guidelines (SVP [1991, 1995, 2005]) standards; typically the Natural History Museum of Los Angeles County and UC Berkeley accept paleontological collections at no cost to the donor. Work may commence upon completion of treatment, as approved by the CPUC.		
Geology and Soils			
Slope Failure	**Mitigation Measure Geology-1:** PG&E shall have a professional geotechnical engineer conduct a geotechnical investigation in areas that are suspected to have unstable soils or landslide susceptibility, be underlain by a fault, or that could be subject to strong ground shaking and ground failure. PG&E shall implement the recommendations and findings in the geotechnical report in the project's final design to minimize the effects of expansive soils, differential settling, fault rupture, strong ground shaking, ground failure, and loose and unstable soils. Where slope failure could occur, design features, such as engineered subgrades and reinforced foundations, over-excavating soft or loose soils and replacing them with engineered backfill materials, increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction, treating soft or loose soils in place with binding or cementing agents, and avoiding areas of unstable soils shall be incorporated into the project's design. PG&E shall comply with all applicable codes and seismic standards.	Verify that geotechnical report has been prepared through inspection of documentation. Verify that geotechnical report contains recommendations related to the geologic hazards if such hazards have been identified.	Prior to construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
Slope Failure	**Mitigation Measure Geology-2:** During pole installation activities on hilly terrain, construction slopes and existing natural slopes impacted by construction operations shall be evaluated for stability. In developing grading plans and construction procedures for re-establishing and widening access roads and replacing power poles, slope stability shall be analyzed. Construction slopes and grading plans shall be designed to limit the potential for slope instability and erosion during construction. Construction activities likely to result in slope instability shall be suspended, as necessary, during and immediately following periods of heavy precipitation when unstable slopes are more susceptible to failure unless adequate best management practices can be implemented, as detailed in the SWPPP.	Verify that grading plans take into account slope stability through inspection of documentation. Verify that construction activities with the potential to disturb slopes do not take place during or immediately after heavy precipitation unless SWPPP measures are implemented.	Prior to and during construction
Hazards and Hazardous Materials			
Accidental Spill	**APM HAZ-02: Spill Prevention Control and Countermeasure Plan Update.** PG&E will update the existing SPCC Plan for Rob Roy Substation and ensure compliance with applicable standards by incorporating the design, control, training, containment, and response requirements for the increased amounts of hydrocarbon and oil storage that will be located at the modified substation, so that hazardous materials will not encounter the soil.	Verify through inspection of Rob Roy Substation SPCC plan to verify that it has been updated. Verify through field inspection the implementation of SPCC measures.	Prior to and during construction
Fire Hazards	**APM HAZ-03: Smoking and Fire Rules.** Smoking will not be permitted during fire season, except in a barren area that is cleared to mineral soil at least 10 feet in diameter or within vehicles or 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 grass and woodlands.	Verify through field checks that smoking occurs only in designated areas.	During construction
Fire Hazards	**APM HAZ-04: Carry Emergency Fire Suppression Equipment.** PG&E construction crew trucks and equipment will have at a minimum a standard round point shovel and a fire extinguisher. If construction activities likely to cause sparks—(e.g., welding, grinding, or grading in rocky terrain—) are conducted, emergency fire tool boxes will be readily available to crews. The tool boxes will contain fire-fighting firefighting items such as shovels, axes, and water.	Verify through spot field checks that crew trucks and equipment are outfitted with fire suppression equipment.	During construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan

Impact	APMs/Mitigation Measures	Monitoring Requirement	Timing of Action
Accidental Spill	**Mitigation Measure Hazards-1:** An Environmental Training and Monitoring Program (ETMP) shall be established to communicate to all field personnel any environmental concerns and appropriate work practices, including spill prevention and response measures and Best Management Practices (BMP). The training program shall emphasize site-specific physical conditions to improve hazard prevention (e.g., identification of flow paths to nearest water bodies) and shall include a review of all site-specific plans. A PG&E-designated representative shall be identified 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 and to provide the necessary information for emergency response. A copy of the ETMP shall be submitted to the California Public Utilities Commission (CPUC) at least 30 days prior to construction. Training attendance sheet(s) shall be submitted to the CPUC on a monthly basis	Verify that the ETMP has been developed at least 30 days prior to construction. Verify monthly the training attendance sheets. Spot check in the field that workers have taken the training	Prior to and during construction
Hazardous Material Exposure	**Mitigation Measure Hazards-2:** PG&E shall prepare and incorporate methods and techniques to minimize the exposure of the public to potentially hazardous materials during all phases of project construction through operation into a Hazardous Substance Control and Emergency Response Plan (HSCERP) as part of the project-specific SWPPP and submit the SWPPP to CPUC for recordkeeping at least 30 days prior to project construction. The HSCERP measures shall require implementation of appropriate control methods and approved containment and spill control practices for construction and on-site material storage. All hazardous materials and hazardous wastes shall be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. With the exception of wood poles, the plan shall specify that all hazardous materials shall be collected in project-specific containers and transported to a PG&E service center designated as a PG&E consolidation site. Wood poles shall be transported off site once removed from the ground and temporarily stored in project-specific containers at a PG&E facility. As containers are filled, poles shall be transported to an appropriate licensed Class I landfill or the composite-lined portion of a solid waste landfill.	Verify that HSCERP has been prepared at least 30 days prior to project construction. Spot check through field inspection that HSCERP measures are being implemented.	Prior to and during construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	The HSCERP measures shall also include, but not be limited to, the following: • Proper disposal of potentially contaminated soils • Vehicles and equipment parking near sensitive resource areas during construction • Emergency response and reporting procedures to address hazardous material releases The measures shall specify that emergency spill supplies and equipment shall be available to respond in a timely manner if an incident should occur. Response materials such as oil-absorbent material, tarps, and storage drums shall be used as needed to contain and control any minor releases.		
Hazardous Material Exposure	**Mitigation Measure Hazards-3:** PG&E shall provide a Health and Safety Plan (HSP) to ensure that potential safety hazards are minimized. The HSP shall include elements that establish worker training and emergency response procedures relevant to project activities. The plan shall be submitted to CPUC at least 30 days prior to construction for CPUC recordkeeping	Verify that the HSP has been prepared at least 30 days prior to construction.	Prior to construction
Hydrology and Water Quality			
Erosion and Sedimentation	**APM HYD-0: Implementation of a SWPPP.** PG&E will file a Notice of Intent with the State Water Resources Control Board for coverage under the General Construction Storm Water Permit and will prepare and implement a SWPPP in accordance with General Order No. 2009-0009-DWQ. Implementation of the SWPPP will help stabilize graded areas and waterways and reduce erosion and sedimentation. The following measures are generally drawn from that permit and PG&E's standard practices, and will be included in the SWPPP prepared for the construction of the project: 1. All Best Management Practices (BMPs) will be on-site and ready for installation before the start of construction activities.	Verity through document inspection that PG&E has submitted the NOI. Verify implementation of measures through field spot checks.	Prior to and during construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
	2. BMPs will be developed to prevent the acceleration of natural erosion and sedimentation rates. A monitoring program will be established to ensure that the prescribed BMPs are followed throughout project construction. All materials shall be certified weed-free; Examples of BMPs include, but are not limited to, the following measures. The appropriate measures will be applied depending on specific site conditions. • Straw wattles, water bars, covers, silt fences, coir logs, sensitive area access restrictions (*e.g.*, flagging), or other sediment containment methods placed around and/or down slope of work areas prior to earth disturbing activities and before the onset of winter rains or any anticipated storm events. • Mulching, seeding, or other suitable measures to protect exposed areas during construction activities as necessary; • Installation of additional silt fencing prior to construction to address unforeseen runoff into nearby wetlands and • drainages; • Use of brooms and shovels (as opposed to water) when possible to maintain a clean site; • Construction of a stabilized construction entrance/exit to prevent tracking of dirt onto public roadways; • Establishment of a vehicle storage, maintenance, and refueling area, if needed, to minimize the spread of oil, gas, and engine fluids; • No overnight parking of mobile equipment within 100 feet of wetlands, culverts, or drainages; and • Positioning stationary equipment (*e.g.*, pumps, generators, etc.) used or stored within 100 feet of wetlands, culverts, or drainages within secondary containment. 3. All BMPs will be inspected before and after each storm event. BMPs will be maintained on a regular basis, and replaced as necessary throughout the course of construction. A Qualified SWPPP Practitioner will supervise placement of silt fencing to limit the area of disturbance. The silt fence will be monitored regularly to ensure effectiveness.		

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan			
Impact	**APMs/Mitigation Measures**	**Monitoring Requirement**	**Timing of Action**
Noise			
Sensitive Noise Receptors	**Mitigation Measure Noise-1:** When construction activities are located within 50 feet of residences, a temporary noise barrier shall be placed between the residences and any noise-generating equipment that cannot move under its own power while in use. The barrier shall be installed within 3 feet of the noise source and shall be approximately 3 feet taller than the piece(s) of equipment. The distance between the barrier and the equipment may be adjusted to ensure safe equipment operation. The type of barrier used shall depend on the noise source, but should be installed without cracks or gaps in the face or large or continuous gaps at the base and have a minimum surface weight of 1.0 lb. per sq. ft. The barriers may be constructed using one or more of the following: 1. Stacked hay bales 2. Standing 0.75-inch-thick plywood or other solid sheet materials with equivalent surface mass. 3. Noise-attenuating construction blanket type barrier materials secured to a cyclone fence or hung off of guy wires or other frame. Barriers shall be removed at the end of noise-generating activities at each location.	Verify use of noise barriers when construction activities are located within 50 feet of residences.	During construction
Sensitive Noise Receptors	**APM NOI-01: Equipment Location and Orientation.** Equipment will be positioned to maximize the distance from residences and to maintain safe and effective operation.	Verify that construction equipment is not positioned near residences.	During construction
Sensitive Noise Receptors	**APM NOI-02: Equipment Maintenance and Mufflers.** All internal combustion engine-driven equipment will be equipped with exhaust mufflers that are in good condition and that meet or exceed the manufacturers' specifications. All equipment will be maintained and tuned according to manufacturers' recommendations.	Verify with spot checks in the field that equipment is kept in good working order.	During construction
Sensitive Noise Receptors	**APM NOI-05: Restrict Helicopter Flight Paths.** Helicopters will maintain a height of at least 500 feet when passing above residential areas, except when they are at temporary construction areas or actively assisting with the stringing of conductor or other project activities. Helicopters will maintain a lateral distance of at least 500 feet from schools when in session.	Verify that helicopter flight paths comply with distance requirements.	During construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan

Impact	APMs/Mitigation Measures	Monitoring Requirement	Timing of Action
Sensitive Noise Receptors	**Mitigation Measure Cumulative-1:** PG&E shall coordinate with any other construction projects being constructed within a 1,500 foot radius if noise impacts at sensitive receptors in the area would exceed an 8-hour L_{eq} of 80 dBA. Noise shall be calculated by PG&E staff based on standard equipment noise generation tables as presented in the IS/MND and the calculations approved by CPUC. For work to proceed as approved by CPUC it must be demonstrated that cumulative noise levels are less than 80 dBA.	If other projects are occurring within 1,500 feet of the proposed project, check noise readings form PG&E staff to verify that noise is below an 8-hour L_{eq} of 80 dBA at the nearest sensitive receptor.	During construction
Public Services			
Emergency Service	**APM PS-01: Coordinate Road Closures with Emergency Service Providers.** At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers in the project vicinity, including, but not limited to, the Santa Cruz County Fire Department, Aptos/La Selva Fire Protection District, Santa Cruz County Sheriff's Office, and Watsonville Police Department. PG&E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.	Verify through inspection of documentation that PG&E has coordinated with the ESPs.	During construction
Recreation			
Park Usage	**Mitigation Measure Recreation-1:** PG&E shall coordinate with Santa Cruz County Parks Department staff at least 4 weeks in advance of construction within Pinto Lake County Park to ensure no pre-scheduled special events shall be interrupted by construction activities.	Verify that PG&E has contacted and coordinated with Santa Cruz County Parks Department four weeks prior to scheduled construction in the park.	During construction
Transportation and Traffic			
Transportation Hazards	**APM TRA-01: Install Reflective Bollards.** Reflective bollards will be installed around the base of TSP foundations to increase vehicle safety along Dalton Lane and at the corner of McDonald Road and Freedom Boulevard.	Verify installation of bollards after construction has been completed at the listed locations.	After construction

Table 4.1-1 (*Continued*): Mitigation Monitoring Plan

Impact	APMs/Mitigation Measures	Monitoring Requirement	Timing of Action
Alternative Transportation	**APM TRA-02: Coordinate Work Within Vicinity of Bus Stop with Bus Service Providers.** At least 2 weeks prior to work within 1,000 feet of any Santa Cruz Metropolitan Transit District (METRO) bus stop, PG&E will coordinate with the METRO to inform them of the project's potential to impact the bus stop. PG&E will provide the METRO with information regarding the location of the bus stop; the anticipated date, time, and duration of construction activities; and a telephone contact number.	Verify through inspection of documentation that PG&E has coordinated with the METRO prior to work within 1,000 feet of a METRO bus stop.	During construction
Transportation Hazards	**Mitigation Measure Traffic-1:** PG&E shall develop a project-specific Transportation Management Plan (TMP) to be implemented during construction, which shall be submitted to the CPUC for review at least 30 days prior to construction. The TMP shall conform to the California Joint Utility Traffic Control Committee's *Work Area Protection and Traffic Control Manual*. The TMP shall include the following: • Standard safety practices, including installation of appropriate barriers between work zones and transportation facilities, placement of appropriate signage, and use of traffic control devices. • Flaggers and/or signage shall be used to guide vehicles through or around construction zones using proper construction techniques. • Provision that all equipment and materials shall be stored in designated work areas in a manner that minimizes traffic obstructions and maximizes sign visibility. • Acceptable vehicle speeds on project roadways. Vehicle speeds shall be limited to safe levels as appropriate for all roads, including access roads and overland routes without posted speed limits. • Routing of trucks to avoid minor roads, where possible, to reduce congestion and potential asphalt damage. • No lane or road closures that would lower vehicle capacity of a road already at LOS D or lower (e.g. Airport Boulevard and Freedom Boulevard) during peak-hour traffic, or as determined through consultation with Santa Cruz County. Note that if encroachment permits include all of the information required in the TMP as identified in this measure, a copy of these permits may be substituted for a TMP. Encroachment permits must be provided to the CPUC 30 days prior to work in the area of the permit.	Verify that TMP has been prepared at least 30 days prior to construction. Verify through field spot checks that measures are being implemented	Prior to and during construction

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5 REPORT PREPARATION

5.1 LIST OF PREPARERS

5.1.1 Lead and Participating Agencies

This section lists those individuals who either prepared or participated in the preparation of the Initial Study (IS). The California Public Utilities Commission (CPUC) is serving as the California Environmental Quality Act lead agency for preparation of the IS. The individuals listed below were involved in preparation of the document.

California Public Utilities Commission

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Consultant Team

The IS was prepared for and under the direction of CPUC by Panorama Environmental, Inc., of San Francisco, California. The following staff contributed to this report:

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The following is the list of agencies and organizations contacted during the preparation of the IS. Additional agencies and tribes were contacted during preparation of the PEA, as identified in the PEA.

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6 REFERENCES

AESTHETICS

Esri. 2013. Raster, vector, and online GIS data resources.

2M Associates. 2012. KOP locations dataset.

PG&E (Pacific Gas & Electric Company). Response to Data Request No. 7. August 30, 2013.

_____. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

AGRICULTURAL RESOURCES

BOE (California Board of Equalization). 2009. California Statistical Abstract, Released January 2009. Table G-27 — Timber Production, California. Available at http://www.dof.ca.gov/html/fs_data/stat-abs/Toc_xls.htm

CDC (California Department of Conservation) 2012a.Williamson Act Program – Basic Contract Provisions. Available at http://www.conservation.ca.gov/dlrp/lca/basic_contract_provisions/Pages/Index.aspx. Accessed June 26, 2012.

_____. 2012b. Farmland Mapping and Monitoring Program Important Farmland Map Categories. Available at http://www.conservation.ca.gov/dlrp/fmmp/mccu/Pages/map_categories.aspx. Accessed June 26, 2012.

_____. 2009a. Division of Land Resource Protection, Farmland Mapping and Monitoring Program, GIS Data.

_____. 2009b. The California Land Conservation (Williamson) Act, GIS Data.

Esri. 2013. Raster, vector, and online GIS data resources.

Insignia. 2012. Preliminary Draft Biological Resources Technical Report for the Santa Cruz 115 kV Reinforcement Project. Prepared by Insignia Environmental. January 2012.

Land Trust of Santa Cruz County. 2012. Next Generation of Conservation. Available at http://www.landtrustsantacruz.org/next-generation-conservation.htm.

_____. 2007. Our County: Two-thirds Forest. Available at http://www.landtrustsantacruz.org/newsletters/07_spring_newsletter.htm. Accessed June 26, 2012.

PG&E. 2012a. GIS Datasets.

_____. 2012b. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

Santa Cruz County. 2012. Geographic Information Systems (GIS). Online: http://gis.co.santa-cruz.ca.us/. Site visited March 15, 2011.

_____. 1994. 1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. Effective December 19, 1994.

Santa Cruz County Agricultural Commissioner. 2011. Santa Cruz County 2011 Crop Report. Available at http://www.agdept.com/content/2011_report.pdf. Accessed October 17, 2012.

AIR QUALITY

CARB (California Air Resources Board) 2012a. Ambient Air Quality Standards. http://www.arb.ca.gov.

_____. 2012b. Area Designations Maps/State and National. Available at http://www.arb.ca.gov.

_____. 2012c. Historical Air Quality Data. Available at http://www.arb.ca.gov.

Clymo, Amy. 2013. Supervising Air Quality Planner, Monterey Bay Unified Air Pollution Control District. Personal communication with Susanne Heim, January 2013.

MBUAPCD (Monterey Bay Unified Air Pollution Control District). 2008a. CEQA Air Quality Guidelines. February 2008.

_____. 2008b. 2008 Air Quality Management Plan.

_____. 2007. 2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region. March 2007.

_____. 2005. 2005 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region. December 2005.

PG&E. 2013. Responses to Information on Air Quality and Greenhouse Gas Impact Analysis for the PEA—Santa Cruz 115 kV Reinforcement Project. May 2013.

_____. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

WRCC (Western Regional Climate Center). 2008. Climate Data Summary.

BIOLOGICAL RESOURCES

AECOM. 2013a. Santa Cruz Long-toed Salamander Assessment and Fencing Strategy. July 2013.

_____. 2103b. Santa Cruz 115-kV Reinforcement Project: Preliminary Delineation of Waters of the United States. July 2013.

Biosearch (Biosearch Associates). 2012. Santa Cruz Long-toed Salamander GIS Data.

_____. 2012a. Santa Cruz Long-toed Salamander Habitat Assessment, PG&E Santa Cruz 115 kV Reinforcement Project, Santa Cruz County. CA. Prepared by Biosearch Associates. March 7, 2012.

_____. 2012b. Revised Final Santa Cruz Long-toed Salamander Habitat Assessment, PG&E Santa Cruz 115 kV Reinforcement Project, Santa Cruz County. CA. September 25, 2012.

CDFW (California Department of Fish and Wildlife). 2011a. State & Federally Listed Endangered & Threatened Animals of California. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEAnimals.pdf.

_____. 2011b. Special Animals. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf.

CNDDB (California Natural Diversity Database). 2012. California Natural Diversity Database Query.

Esri. 2013. Raster, vector, and online GIS data resources.

Hamilton, W.J. 2004. Tricolored Blackbird (*Agelaius tricolor*). *In* The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. Available at http://www.prbo.org/calpif/htmldocs/riparian_v-2.html.

Insignia (Insignia Environmental). 2011. California Red-legged Frog Protocol-level Survey Report.

_____. 2012. GIS Datasets.

_____. 2012a. Preliminary Draft Biological Resources Technical Report for the Santa Cruz 115 kV Reinforcement Project. Prepared by Insignia Environmental. January 2012.

_____. 2012b. Rare Plant Survey Report for the Santa Cruz 115 kV Reinforcement Project. Prepared by Insignia Environmental. January 2012.

_____. 2012c. Amesti Contractor Storage Yard Habitat Assessment Survey Results.

_____. 2012d. Corralitos Staging Area/Landing Zone Habitat Assessment.

_____. 2012e. Sakata Staging Area Habitat Assessment.

Lee, Derek E. & William D. Tietje. 2005. Dusky-footed Woodrat Demography and Prescribed Fire in a California Oak Woodland.

MNFI (Michigan Natural Features Inventory). 2007. Rare Species Explorer. http://mnfi.anr.msu.edu/explorer/species.cfm?id=10938. Accessed August 10, 2012.

MROSD (Midpeninsula Regional Open Space District). 2011. Threatened and Endangered Species. http://www.openspace.org/preserves/highlight_threatened.asp.

NatureServe. 2012. NatureServe Explorer. http://www.natureserve.org. Accessed August 8, 2012.

NOAA (National Oceanic and Atmospheric Administration). 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California, 70 Fed. Reg. 52488 (September 2, 2005).

_____. 2005. National Marine Fisheries Service Steelhead DPS Critical Habitat GIS Dataset.

Pagel et al. 2010. Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations. U.S. Fish & Wildlife Service. February 2010.

Texas A&M. 2012. The Texas Breeding Bird Atlas. http://txtbba.tamu.edu/species-accounts/yellow-breasted-chat/. Accessed August 10, 2012.

USACE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September 2008.

_____. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-l, US Army Engineer Waterways Experiment Station, Vicksburg, Miss.

USDA (United States Department of Agriculture. 2003. Plant Guide: Monterey Pine. http://plants.usda.gov/plantguide/pdf/cs_pira2.pdf. Accessed August 13, 2012.

USFS (United States Department of Agriculture Forest Service). 2012. *Pinus radiata* D. Don Monterey Pine. http://www.na.fs.fed.us/pubs/silvics_manual/Volume_1/pinus/radiata.htm. Accessed August 8, 2012.

USFWS (US Fish and Wildlife Service). 2012a. Western Snowy Plover. http://www.fws.gov/arcata/es/birds/WSP/plover.html.

_____. 2012b. Bald Eagles. Pacific Region. www.fws.gov/pacific/eagle/biology.html. Accessed August 8, 2012.

_____. 2009. Santa Cruz Long-toed Salamander (*Abystoma macrodactylum croceum*), 5-Year Review: Summary and Evaluation. Available at http://ecos.fws.gov/docs/five_year_review/doc2630.pdf.

_____. 2006. Monterey Spineflower Critical Habitat, GIS Dataset.

_____. 1999. Draft Revised Recovery Plan for the Santa Cruz Long-toed Salamander. April 1999. Available at http://ecos.fws.gov/docs/recovery_plan/990702.pdf.

Verner, Jared & Boss, Allan S., technical coordinators. 1980. California wildlife and their habitats: western Sierra Nevada. Gen. Tech. Rep. PSW-37. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station.

Western Field Ornithologists. 2008. *Studies of Western Birds No.1*. http://www.westernfieldornithologists.org/08sosc.php.

CULTURAL RESOURCES

Brabb, E.E., S.E. Graham, C. Wentworth, D. Knifong, R. Graymer, & J. Blissenbach. 1997. Geologic Map of Santa Cruz County, California: A digital database: U.S. Geological Survey Open-File Report 97-489.

Esri. 2013. Raster, vector, and online GIS data resources.

Far Western. 2012. Archaeological Survey Report for the PG&E Santa Cruz 115 kV Reinforcement Project, Santa Cruz County, California. January 2012.

PG&E. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

Santa Cruz County. 2012. Santa Cruz County Code Chapter 16.40. http://www.codepublishing.com/ca/santacruzcounty/. Accessed November 19, 2012.

GEOLOGY AND SOILS

2007 WGCEP (2007 Working Group on California Earthquake Probabilities). 2008. The Uniform California Earthquake Rupture Forecast, Version2 (UCERF 2), USGS Open-File Report 2007-1437.

Brabb, E.E., S.E. Graham, C. Wentworth, D. Knifong, R. Graymer, & J. Blissenbach. 1997. Geologic Map of Santa Cruz County, California: A digital database: U.S. Geological Survey Open-File Report 97-489.

Bryant, W.A., compiler. 2000. Fault number 58a, Sargent fault zone, northwestern section, in Quaternary fault and fold database of the United States: U.S. Geological Survey website. Available at http://earthquakes.usgs.gov/regional/qfaults. Accessed June 13, 2012.

Cao, T., W.A. Bryan, B. Rowshandel, D. Branum, & C.J. Wills. 2003. The revised 2002 California probabilistic seismic hazard maps. Department of Conservation, California Geologic Survey. June 2003.

CGS (California Geological Survey). 2010. 2010 Fault activity map of California. Compilation and interpretation by C.W. Jennings and W.A. Bryant. Geologic Data Map No. 6.

_____. 2008. Seismic shaking hazards in California, based on the USGS/CGS probabilistic seismic hazards assessment, Model 2002 (revised April 2003). Available at

http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.htm. Accessed May 10, 2012.

_____. 1982. State of California Special Studies Zones. Watsonville East Quadrangle. Scale: 1:24,000. January 1.

_____. 1976. State of California Special Studies Zones. Watsonville West Quadrangle. Scale: 1:24,000. January 1.

Esri. 2013. Raster, vector, and online GIS data resources.

Hart, E.W. & W.A. Bryant. 2007. Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps. Department of Conservation, California Geological Survey, Special Publication 42.

Insignia Environmental. 2012. GIS Datasets.

Jennings, C.W., with modifications by Gutierrez, C., Bryant, W., Saucedo, G., and Wills, C. 2010. Geologic map of California: California Geological Survey, Geologic Data Map No. 2, scale 1:750,000.

Natural Resources Conservation Service (NRCS). 2012. Web Soil Survey. Available at http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Accessed May 10, 2012.

Santa Cruz County. 2012. Santa Cruz County Geographic Information System, Liquefaction Dataset. Available at http://gis.co.santa-cruz.ca.us.

_____. 2010. Local Hazard Mitigation Plan, 2010-2015. October 2010.

_____. 1994. 1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. December 19, 1994.

USGS (U.S. Geological Survey). 2012. Earthquake Hazards Program. Available at http://earthquake.usgs.gov/. Accessed June 13, 2012.

USGS & CGS. 2010. Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California. Version 2.0. Available at http://consrv.ca.gov/CGS/information/publications/QuaternaryFaults_ver2.htm.

GREENHOUSE GASES

CARB. 2011a. AB 32 Climate Change Scoping Plan Document. August 2011.

_____. 2011b. California Greenhouse Gas Emissions Inventory 2000–2009. December 2011.

_____. 2008. Climate Change Proposed Scoping Plan. October 2011.

CPUC (California Public Utilities Commission). 2012. Climate Strategy Activities of the CPUC. July 2012. Available at http://www.cpuc.ca.gov/PUC/energy/Climate+Change/.

EPA (U.S. Environmental Protection Agency). 2012. Regulatory Initiatives. May 2012. Available at http://www.epa.gov.

IPCC (Intergovernmental Panel on Climate Change). 2007. History. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Solomon, S., Qin, D., Manning, M., Chen, Z., Marquis, M., Averyt, K.B., Tignor, M., and Miller, H.L. (eds.). Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA. Available at http://www.ipcc.ch.

MBUAPCD. 2010. Regulation II: Permits. Rule 218: Title V, Federal Operating Permits. Last Updated November 17, 2010.

_____. 2008. 2004 Santa Cruz County Mobile Source GHG Inventory. August 2008.

PG&E. 2013. Responses to Information on Air Quality and Greenhouse Gas Impact Analysis for the PEA—Santa Cruz 115 kV Reinforcement Project. May 2013.

_____. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

UNFCCC (United Nations Framework Convention on Climate Change). 2012. Background on the UNFCCC: The International Response to Climate Change. unfccc.int. May 2012.

HAZARDS AND HAZARDOUS MATERIALS

CAL FIRE (California Department of Forestry and Fire Protection). 2012. Fire Hazard Severity Zone GIS Dataset.

_____. 2007a. Fire and Resource Assessment Program. Draft Fire Hazard Severity Zones in LRA, Santa Cruz County. October 3. Available at http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_santacruz.php. Accessed May 24, 2012.

_____. 2007b. Fire and Resource Assessment Program. Fire Hazard Severity Zones in SRA, Santa Cruz County. November 6. Available at http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_santacruz.php. Accessed May 24, 2012.

CAL FIRE & RCD (CAL FIRE & Resource Conservation District for San Mateo County and Santa Cruz County). 2010. Community Wildfire Protection Plan, Santa Cruz County/San Mateo County. May 2010.

DTSC (California Department of Toxic Substances Control). 2012. Envirostor Database. Available at http://www.envirostor.dtsc.ca.gov/public/. Accessed May 24, 2012.

EPA. 2012. National Priorities List Database. Available at http://www.epa.gov/superfund/sites/npl/. Accessed May 24, 2012.

Esri. 2013. Raster, vector, and online GIS Data Resources.

OES (County of Santa Cruz Office of Emergency Services). 2005. Draft Operational Area Emergency Management Plan (EMP). September 2005.

PG&E. 2012. GIS Datasets.

SWRCB (State Water Resources Control Board). 2013. Geotracker Database. Available at http://geotracker.waterboards.ca.gov/. Accessed August 30, 2013.

Watsonville Municipal Airport. 2002. Watsonville Municipal Airport Master Plan, 2001-2020, Public Review Draft. August 2002.

HYDROLOGY AND WATER QUALITY

AECOM. 2013. Santa Cruz 115-kV Reinforcement Project: Preliminary Delineation of Waters of the United States. July 2013.

CCRWQCB. (Central Coast Regional Water Quality Control Board). 2010. Clean Water Act Section 303(d) List. Available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

California Department of Fish and Wildlife. 2007. California Lakes GIS Dataset.

_____. 2003. California Statewide 1:100,000 Scale Routed Hydrography GIS Dataset.

CDWR (California Department of Water Resources). 2006. Central Coast Hydrologic Region: Pajaro Valley Groundwater Basin. January 20, 2006.

_____. 2003. California's Groundwater: Bulletin 118, Update 2003. October 2003.

Esri. 2013. Raster, vector, and online GIS Data Resources.

FEMA (Federal Emergency Management Agency). 2008. National Flood Hazard Data Layer. Available at https://msc.fema.gov/.

Insignia Environmental. 2012. GIS Datasets.

PG&E. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

PVWMA (Pajaro Valley Water Management Agency). 2012. Pajaro Valley Water Management Agency Website. Available at http://www.pvwma.dst.ca.us/. Accessed on June 20, 2012.

Santa Cruz County. 2010. Local Hazard Mitigation Plan, 2010–2015. October 2010.

U.S. Fish and Wildlife Service. 2009. National Wetlands Inventory GIS Geodatabase.

WDPW (City of Watsonville Department of Public Works and Utilities). 2012. City of Watsonville Department of Public Works and Utilities, Water Division. Available at http://cityofwatsonville.org/public-works-utilities/water. Accessed July 2, 2012.

LAND USE AND PLANNING

CDFG. 2012. Summary of Natural Community Conservation Plans (NCCPs), January 2012. Available online at: http://www.dfg.ca.gov/habcon/nccp/. Accessed June 22, 2012.

City of Watsonville. 2012. Watsonville Vista 2030 General Plan Recirculated Draft Environmental Impact Report, Watsonville 2005 General Plan Land Use Diagram.

_____. 2007. Watsonville Geographic Information Systems Center, Zoning Map. http://cityofwatsonville.org/download/cdd/Zoning_Landscape_B.pdf.

Esri. 2013. Raster, vector, and online GIS Data Resources.

Santa Cruz County. 2012. Santa Cruz County Geographic Information Systems, GIS Land Use and Zoning Datasets. Website: http://gis.co.santa-cruz.ca.us.

_____. 1994. 1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. Effective December 19, 1994.

MANDATORY FINDINGS OF SIGNIFICANCE

Burns, Tom, Planning Director, Santa Cruz County. 2009. Letter to Board of Supervisors: Public hearing on Application Number 08-0486 (Mid-Peninsula Housing Coalition). February 18, 2009.

Caltrans (California Department of Transportation). 2013a. Status of Projects: Central Region, District 05. Available at http://www.dot.ca.gov/dist05/projects/pdf/d5sop.pdf/. May 20, 2013.

_____. 2013b. Project Update—Santa Cruz County. http://www.dot.ca.gov/dist05/paffairs/santacruz/sccrtc_updates_9.5.13.pdf. September 2013.

_____. 2013c. News Release: Highway 1 Repaving Project through Watsonville Begins this Week. http://www.dot.ca.gov/dist05/paffairs/santacruz/scr1_watsonville_rehab_begins_32311.pdf. March 23, 2012.

City of Santa Cruz. 2010. 2010 Urban Water Management Plan.

City of Santa Cruz Water Department. 2009. Water Shortage Contingency Plan. March 2009. Available at http://www.cityofsantacruz.com/Modules/ShowDocument.aspx?documentid=14601.

City of Watsonville. 2012. Quinn Avenue Storm Drain Project Website. Available at http://cityofwatsonville.org/city-of-watsonville/quinn-avenue-storm-drain-project. Accessed October 17, 2012.

Clymo, Amy. 2013. Supervising Air Quality Planner, MBUAPCD. Personal communication with Susanne Heim, Panorama Environmental, Inc. January 11, 2013.

County of Santa Cruz Planning Department. 2009. Staff Report to the Planning Commission. Application #08-0486, APN #051-511-35, MP Minto Associates, LP. February 11 2009.

Esri. 2013. Raster, vector, and online GIS Data Resources.

Hannula, Tarmo. 2013. "88 affordable homes near completion." June 7, 2013. http://www.register-pajaronian.com/v2_news_articles.php?heading=0&story_id=14639&page=72.

Hessing, D. 2012. California Department of Transportation. Personal communication with K. Black, Panorama Environmental, Inc. October 17, 2012.

Jones, Donna. 2012. "Apartment complex named to honor former county housing chief." Mercury News. June 7, 2012. Available at http://www.mercurynews.com/breaking-news/ci_20808793/apartment-complex-named-honor-former-county-housing-chief.

Land Trust of Santa Cruz County. 2012. Next Generation of Conservation. Available at http://www.landtrustsantacruz.org/next-generation-conservation.htm.

Loopnet. 2012. Approved Gas Station/Car Wash/Mini-Mart. http://www.loopnet.com/Listing/15974005/298-Green-Valley-Road-Watsonville-CA/. Accessed March 12, 2013.

McCormick, Patrick, Executive Officer, LAFCO. 2009. Memo: LAFCO Application No. 932, Extraterritorial Water Service to Minto Place Apartments from Watsonville City Water Department. December 28, 2009.

Milar, Shawn. 2013. U.S. Fish and Wildlife Service Coastal Program. Personal communication with K. Black, Panorama Environmental, Inc. August 30, 2013.

PG&E. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

_____. 2009. PG&E's 2009 Electric Transmission Grid Expansion Plan. March 5, 2012.

RCD Santa Cruz (Resource Conservation District of Santa Cruz County). 2005. Integrated Regional Water Management Plan, Northern Santa Cruz County Preliminary Plan. October 2005.

Santa Cruz County. 2012. Santa Cruz County Department of Public Works, Santa Cruz County Sanitation District. Available at http://www.dpw.co.santa-cruz.ca.us/sanitation.htm# SCCSD. Accessed June 20, 2012.

Sharp, T. 2013. City of Watsonville. Personal communication with K. Black, Panorama Environmental, Inc. August 22, 2013.

SqCWD (Soquel Creek Water District). 2012. What's on Tap at the Soquel Creek Water District. November/December 2012. http://soquelcreekwater.org/sites/default/files/nov-dec2012_newsletter_1.pdf.

_____. 2010. ScCWD Well Master Plan Draft Environmental Impact Report. September 2010.

US Agricultural Census. 2007. 2007 Census of Agriculture: County Profile, Santa Cruz County, California.

MINERALS

Esri. 2013. Raster, vector, and online GIS Data Resources.

Santa Cruz County. 2012. Santa Cruz County Geographic Information System Mineral Resources Datasets. Available at http://gis.co.santa-cruz.ca.us.

_____. 1994. 1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. December 19, 1994.

SMGB (State Mining and Geology Board). 2008. A Report of Mineral Land Classification and Designation under the Surface Mining and Reclamation Act of 1975. SMGB Information Report 2008-05. July 2008.

_____. 1987. Regionally Significant Construction Aggregate Resource Areas in the Monterey Bay Production-Consumption Region. Watsonville West Quadrangle, SMARA Designation Map No. 85-6, Monterey Bay, Plate 13. January 1987.

USGS. 2011. 2008 Minerals Yearbook, California [Advance Release]. March 2011.

NOISE

Acentech. 2011. Santa Cruz 115-Kilovolt Reinforcement Project Technical Noise and Vibration Study Report. September 2011.

Caltrans. 2009. Technical Noise Supplement (red-line version). Prepared by ICF Jones & Stokes. November 2009.

_____. 2004. Transportation- and Construction-Induced Vibration Guidance Manual. Caltrans Noise, Vibration, and Hazardous Waste Management Office.

Darnley, L. Santa Cruz County Planning Department, pers. comm., October 9, 2012.

Esri. 2013. Raster, vector, and online GIS Data Resources.

FHA (Federal Highway Administration). 2006. U.S. Department of Transportation. Roadway Construction Noise Model (RCNM) User's Guide. Final Report. FHWA-HEP-05-054, DOT-VNTSC-FHWA-05-01). January 2006.

Flanagan, R.F. 1993. "Ground Vibrations from TBMs and Shields." Tunnels and Tunneling.

FRA (Federal Railroad Administration). 2005. High-Speed Ground Transportation Noise and Vibration Impact Assessment. October 2005. Available at http://www.fra.dot.gov/downloads/RRDev/final_nv.pdf.

PG&E. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

Santa Cruz County. 1994. 1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. Effective December 19, 1994.

Snapfour. Undated. Combined Noise Source & Distance Calculator. http://www.snapfour.com/CombinedNoise_Calculations.aspx.

USDOT (U.S. Department of Transportation). 2006. Transit Noise and Vibration Impact Assessment. May 2006.

Watsonville Municipal Airport. 2002. Watsonville Municipal Airport Master Plan, 2001–2020, Public Review Draft. August 2002.

POPULATION AND HOUSING

CDOF (California Department of Finance). 2012a. E-1: Cities, Counties, and the State Population Estimates with Annual Percent Change—January 1, 2011, and 2012. Available at http://www.dof.ca.gov/research/demographic/reports/estimates/e-1/view.php. Accessed May 16, 2012.

_____. 2012b. E-2: California County Population Estimates and Components of Change by Year, July 1, 2010-2011. Available at http://www.dof.ca.gov/research/demographic/reports/estimates/e-2/view.php. Accessed May 16, 2012.

_____. 2012c. Interim Population Projections for California and its Counties, 2010-2050. Available at http://www.dof.ca.gov/research/demographic/reports/projections/interim/view.php. Accessed May 16, 2012.

_____. 2012d. E-5: City/County Population and Housing Estimates—January 1, 2012. Available at http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php. Accessed May 16, 2012.

_____. 2011. E-2: California County Population Estimates and Components of Change by Year, July 1, 2000-2010. Available at http://www.dof.ca.gov/research/demographic/reports/estimates/e-2/2000-10/. Accessed May 16, 2012.

PROJECT DESCRIPTION

Esri. 2013. Raster, vector, and online GIS Data Resources.

Insignia Environmental. 2012. GIS Datasets.

PG&E. 2013. PG&E's Response to CPUC Data Request No. 4. March 1, 2013.

_____. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

PUBLIC SERVICES

ALSFPD (Aptos-La Selva Fire District). 2012. Aptos-La Selva Fire Protection District Website. Available at http://www.aptosfire.com/. Accessed June 20, 2012.

Applied Survey Research. 2011. Santa Cruz Community Assessment Project, Comprehensive Report, 2011.

Esri. 2013. Raster, vector, and online GIS Data Resources.

PVFPD (Pajaro Valley Fire Protection District). 2012. Pajaro Valley Fire Protection District Website. Available at http://www.pajarovalleyfire.com/. Accessed June 20, 2012.

PVUSD (Pajaro Valley Unified School District). 2012. Pajaro Valley Unified School District Website. Available at http://www.pvusd.net/. Accessed June 20, 2012.

RECREATION

Esri. 2013. Raster, vector, and online GIS Data Resources.

PG&E 2012. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

Santa Cruz County. 2012. Santa Cruz County Geographic Information System Existing Parks Dataset. Available at http://gis.co.santa-cruz.ca.us.

SCCCVC (Santa Cruz County Conference and Visitor's Center). 2012. Available at http://www.santacruzca.org/press/facts-stats-faqs.php. Accessed August 1, 2012.

Santa Cruz Regional Transportation Commission. 2010. Bicycle Route GIS Geodatabase.

TRANSPORTATION AND TRAFFIC

Caltrans. 2011a. 2010 Traffic Volumes on the California State Highway System. Available at http://traffic-counts.dot.ca.gov/. Accessed June 19, 2012.

_____. 2011b. California Road System Maps: 06m, 06n, 06n22, 06n23. Available at http://dot.ca.gov/hq/tsip/hseb/crs_maps/index.php.

Caltrans. 2004. Transportation- and Construction-Induced Vibration Guidance Manual. Available at http://www.dot.ca.gov/hq/env/noise/pub/vibrationmanFINAL.pdf.

City of Aliso Viejo. 2004. General Plan: Circulation Element. Available at http://www.cityofalisoviejo.com/Portals/0/Documents/GeneralPlan/3_Circulation.pdf.

METRO (Santa Cruz Metropolitan Transit District). 2012. System Map and Routes. Available at http://www.scmtd.com/en/routes/system-map. Accessed August 2, 2012.

Omni-Means. 2012. Traffic Memo: Response to comments on initial draft transportation section.

PG&E. 2012. Proponent's Environmental Assessment for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project. January 2012.

Santa Cruz County. 1994. 1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. December 19, 1994.

Santa Cruz County Department of Public Works. 2009. Maintained Road Data. Available at http://www.dpw.co.santa-cruz.ca.us/operation.htm. December. Accessed July 13, 2012.

SCCRTC (Santa Cruz County Regional Transportation Commission). 2010a. Santa Cruz County Regional Transportation Plan. Available at http://sccrtc.org/funding-planning/long-range-plans/past-rtps/. June 2010.

_____. 2010b. Santa Cruz County Bike Map. Available at http://sccrtc.org/services/bike/.

Watsonville Municipal Airport. 2002. Watsonville Municipal Airport Master Plan, 2001–2020, Public Review Draft. August 2002.

UTILITIES AND SERVICE SYSTEMS

CDRRR (California Department of Resources Recycling and Recovery). 2012. Available at http://www.calrecycle.ca.gov/. Accessed July 3, 2012.

PVWMA. 2012. Pajaro Valley Water Management Agency Website. Available at http://www.pvwma.dst.ca.us/. Accessed June 20, 2012.

Santa Cruz County. 2012. Santa Cruz County Department of Public Works, Santa Cruz County Sanitation District. Available at http://www.dpw.co.santa-cruz.ca.us/sanitation.htm #SCCSD. Accessed June 20, 2012.

SCRSWS (Santa Cruz County Recycling and Solid Waste Services). 2012. Santa Cruz County Recycles Website. Available at http://www.santacruzcountyrecycles.org/. Accessed June 28, 2012.

WDPW (City of Watsonville Department of Public Works and Utilities). 2012. City of Watsonville Department of Public Works and Utilities, Water Division Website. Available at http://cityofwatsonville.org/public-works-utilities/water. Accessed July 2, 2012.

APPENDIX A:
CONSTRUCTION AIR QUALITY EMISSIONS METHODOLOGY

CONSTRUCTION AIR QUALITY EMISSIONS METHODOLOGY

OVERVIEW

This Appendix summarizes Pacific Gas & Electric's (PG&E's) construction-phase air quality and greenhouse gas (GHG) modeling efforts and results for the Santa Cruz 115kV Reinforcement Project.

ON- AND OFF-ROAD VEHICLES

Methodology

Modeling

PG&E initially used Urban Emissions version 9.2.4 (URBEMIS 2007) and Emission Factors version 2.30 (EMFAC2007) to estimate criteria air pollutant emissions and carbon dioxide emissions from off- and on-road vehicle use. Upon request, PG&E remodeled the air emissions using the most recent version (version 2011.11.1) of the California Emissions Estimator Model version 2011.11.1 (CalEEMod).

Emissions Factors

The emissions factors for CalEEMod are taken from EMFAC2007 for on-road vehicles and OFFROAD 2007 for off-road equipment. The emissions factors are contained in Attachment A to the CalEEMod User's Guide as "Calculation Details."

Model Input

PG&E's initial URBEMIS modeling and EMFAC calculations were converted for use in CalEEMod.

Results

Calculations were completed for mitigated and unmitigated emissions. Emissions are summarized below.

Mitigated

Table 1 contains the results of calculations of mitigated criteria pollutant emissions from vehicles and fugitive dust. APM AIR-01 and APM AIR-02 were factored into the calculation of emissions. APM AIR-01 requires that active construction areas, unpaved access roads, parking areas, and staging areas be watered or stabilized with non-toxic soil stabilizers at least two times per day or as needed to control fugitive dust. APM AIR-02, which has since been deleted, required that traffic speeds on unpaved roads and rights-of-way be limited to 15 miles per hour

(mph). Although APM AIR-02 has been deleted, APM BIO-10 also required a 15 mph speed limit on unpaved access roads.

Table 1: Mitigated Criteria Pollutant Emissions from Vehicles and Fugitive Dust (pounds per day)

$PM_{2.5}$	PM_{10}	NO_X	SO_X	CO	VOCs
21.90	41.98	349.16	0.51	234.24	50.75

Table 2 contains the results of calculations of mitigated GHG emissions from off- and on-road vehicles. APM AIR-03 and APM AIR-04 were factored into the emissions calculation. APM AIR-03, which has since been deleted, required that vehicle idling time be limited to a maximum of 5 minutes, except where vehicle idling is required for the equipment to perform the task. It was assumed that implementation of APM AIR-03 would result in an emissions reduction of 10 percent. APM AIR-04, which has since been deleted, required that PG&E encourage its workers to carpool to the job site, to the extent feasible. It was assumed that implementation of AIR-04 would result in an emissions reduction of 5 percent.

Table 2: Mitigated On- and Off-Road GHG Emissions (metric tons)

Equipment Type	Approximate CO_2 Emissions	Approximate CH_4 Emissions	Approximate N_2O Emissions
Off-Road Vehicles	281.11	0.010	<0.001
On-Road Vehicles	1,509.95	0.135	<0.001
Total	**1,791.06**	**0.145**	**<0.002**

Unmitigated

PG&E did not calculate unmitigated criteria pollutant emissions for on- and off-road vehicles. PG&E conducted emissions calculations for unmitigated GHG emissions. Table 3 contains the results of the calculations.

Table 3: On- and Off-Road GHG Emissions (metric tons)

Approximate CO_2 Emissions	Approximate CH_4 Emissions	Approximate N_2O Emissions
1,973.62	0.180	<0.001

HELICOPTERS

Methodology

Modeling

Past modeling from similar runs of the Federal Aviation Administration's Emissions and Dispersion Modeling System (EDMS) were used to estimate emissions from helicopter use for the project. The past modeling runs were scaled according to the number of trips anticipated on the proposed project.

Emissions Factors

Helicopter emissions were estimated using emission factors from the Emissions and Dispersion Modeling System (EDMS) and the California Climate Action Registry General Reporting Protocol. The emission factors are shown in Table 4.

Table 4: Helicopter Emissions Factors

Mode	Fuel Flow (kilograms per second)	Time in Mode (minutes)	Emission Factor (pounds per minute)					
			CO	ROG	NO_x	SO_x	PM[1]	CO_2
Taxi Out	0.013	2	0.007	0.069	0.007	0.004	0.010	10.838
Takeoff	0.119	1	0.228	0.001	0.228	0.040	0.054	98.788
Climbout	0.117	2	0.227	0.001	0.227	0.040	0.045	97.732
Approach	0.029	20	0.032	0.001	0.032	0.010	0.018	23.855
Taxi In	0.013	1	0.007	0.069	0.007	0.004	0.010	10.838

Note

1 PM estimates were assumed to be entirely PM_{10}. PM_{10} emissions were assumed to be comprised of 90 percent $PM_{2.5}$.

Model Assumptions and Emission Rates

It was assumed that up to 190 hours of helicopter use, spread over 35 days, would be required to assist with the construction of TSP foundations, installation of TSPs, and pulling and stringing of conductor. Activity and emission rates are given in Table 5.

Results

Table 6 displays the results of the helicopter emissions calculations for criteria pollutants. Table 7 displays the results of the helicopter greenhouse gas emissions calculations.

Table 5: Helicopter Emission Rates

Activity	Days of Use	Duration of Use (hours per day)	Cycles per Day	Total Flight Cycles	Emission Rate (pounds per day)					
					CO	ROG	NO_x	SO_x	PM^1	CO_2
Foundations	5	3	7	35	0.10	0.96	0.10	0.06	0.14	151.74
TSP Installation	5	8	19	95	4.33	0.02	4.33	0.76	1.03	1,876.97
Remove Poles	5	3	7	35	3.18	0.01	3.18	0.57	0.64	1,368.25
String Conductor	20	6	14	280	8.90	0.28	8.90	2.73	5.08	6,679.32
TOTAL	—	—	—	—	16.51	1.27	16.51	4.12	6.88	10,076.29

Note

1 PM estimates were assumed to be entirely PM10. PM10 emissions were assumed to be comprised of 90 percent PM2.5.

Table 6: Helicopter Criteria Pollutant Emissions (pounds per day)

$PM_{2.5}$	PM_{10}	NO_X	SO_X	CO	VOCs
12.39	13.77	33.02	8.23	33.02	2.55

Table 7: Helicopter GHG Emissions (metric tons)

Approximate CO2 Emissions	Approximate CH4 Emissions	Approximate N2O Emissions
136.60	0.004	0.004

APPENDIX B:
SANTA CRUZ LONG-TOED SALAMANDER HABITAT ASSESSMENT

Santa Cruz Long-toed Salamander Assessment and Fencing Strategy

Santa Cruz 115 kV Reinforcement Project

Prepared for:

Pacific Gas and Electric Company

AECOM

July 2013

Santa Cruz Long-toed Salamander Assessment and Fencing Strategy

Santa Cruz 115 kV Reinforcement Project

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A SCLTS Breeding Ponds Tables
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EXECUTIVE SUMMARY

Pacific Gas and Electric Company (PG&E) proposes to upgrade a portion of its electrical system between Green Valley Substation near Watsonville and Rob Roy Substation in Aptos as part of the Santa Cruz 115 Kilovolt (kV) Reinforcement Project (project). In spring 2013, Biosearch Associates (Biosearch) conducted a habitat assessment for the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum* [SCLTS]) at each proposed work area and access route within the proposed project. Biosearch was tasked with confirming habitat suitability along the project corridor and identifying project work areas that could support SCLTS. A record and literature review as well as a field assessment was performed. Based on the data collected in their report, it was determined that, of 131 total project areas reviewed within 1 mile of a known or suitable SCLTS breeding pond, 37 work areas and five overland access routes contain suitable upland habitat in which the species could seek cover during the dry season. To avoid impacts to SCLTS during dry season work within these areas, PG&E will fence all work areas determined to provide suitable upland habitat for SCLTS to avoid incidental take of the species.

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1 INTRODUCTION AND BACKGROUND

Pacific Gas and Electric Company (PG&E) proposes to upgrade a portion of its electrical system between Green Valley Substation near Watsonville and Rob Roy Substation in Aptos as part of the Santa Cruz 115 Kilovolt (kV) Reinforcement Project (project). The electrical upgrade would improve electrical reliability, operational flexibility, and system capacity and prevent extended power outages for several communities in Santa Cruz County. During the routing phase, PG&E evaluated several route alternatives and chose the current alignment to reduce possible effects on the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum* [SCLTS]) to the maximum extent (Insignia Environmental 2010).

A portion of the project alignment—between approximately Pole C-38/E-42 and Rob Roy Substation—is located within or along the edge of the known range of SCLTS, a species listed as endangered under both the federal Endangered Species Act and the California Endangered Species Act and designated as Fully Protected under California Fish and Game Code.

To assess the potential for SCLTS to inhabit the project work areas, Biosearch Associates (Biosearch) performed a habitat assessment following a modified approach to the *Guidance on Site Assessment and Field Surveys to Detect Presence or Report a Negative Finding of the Santa Cruz Long-toed Salamander* endorsed by U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) (USFWS and CDFW 2012). Based on the data and findings of their assessment, the following memorandum was prepared to address Biosearch's habitat suitability findings, as well as the implementation of the project mitigation measures regarding work area exclusion fencing. This memorandum was developed to fulfill the following objectives:

1. Provide a summary of Biosearch's data that shows the absence of suitable SCLTS breeding habitat within the project corridor

2. Use Biosearch's data to identify project areas that fall within suitable upland habitat for the SCLTS

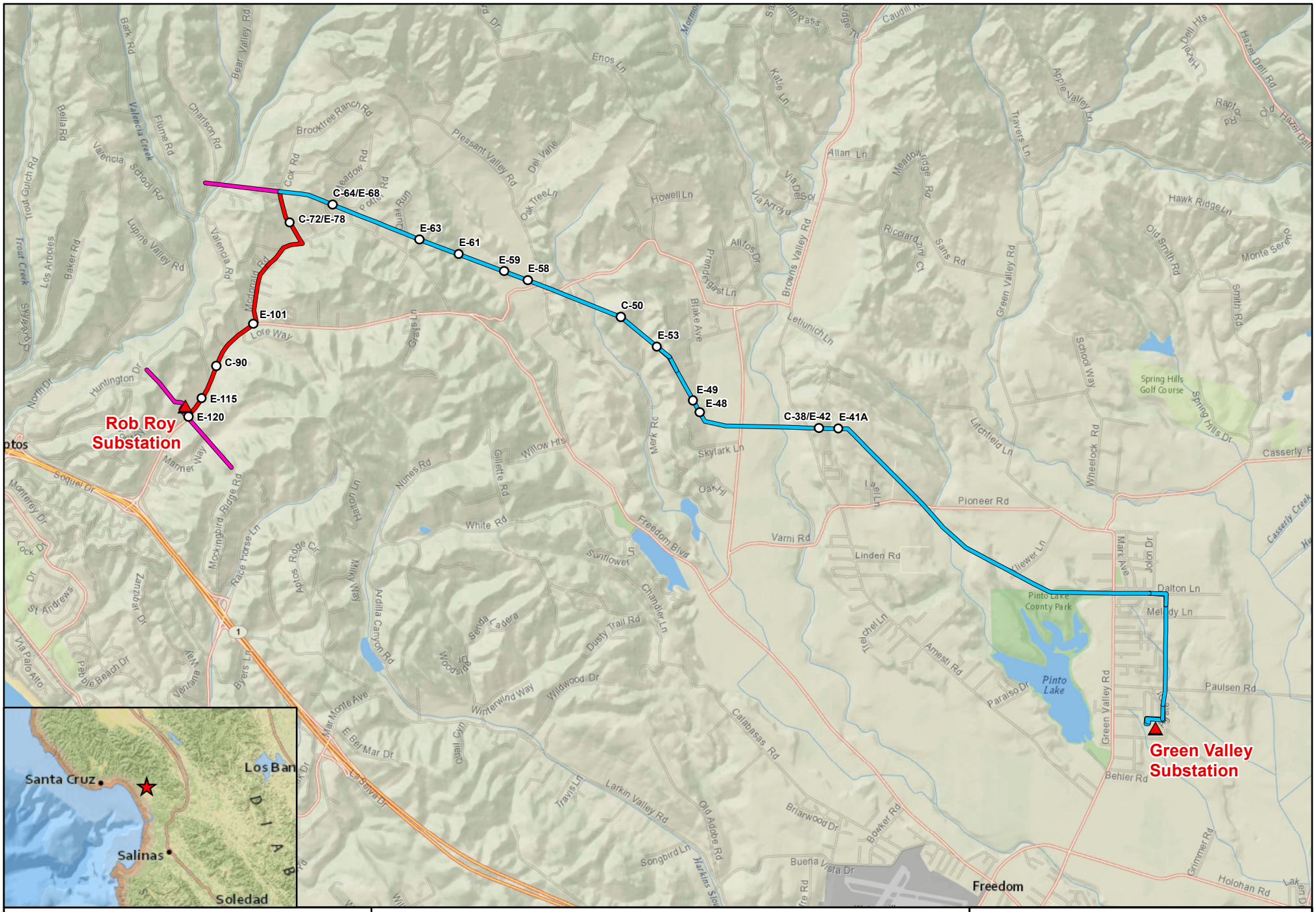
3. Identify the project work areas to be fenced during construction

4. Identify project work areas that do not support any habitat for SCLTS

1.1 PROJECT DESCRIPTION

The project is located in southern Santa Cruz County, California, as shown in Figure 1. The alignment starts at Green Valley Substation, just north of Watsonville and travels northwest through Corralitos, Pleasant Valley, and Day Valley, before turning south and terminating at Rob Roy Substation, along Freedom Boulevard in Aptos. The project can be divided into two segments:

- **Northern Alignment:** Includes the portion collocated along an existing 115 kV line and spanning between Green Valley Substation and the intersection of Cox Road and Leslie Lane north of Aptos.


C-64/E-68
C-72/E-78
E-63
E-61
E-59
E-58
C-50
E-53
E-49
E-48
C-38/E-42
E-41A
E-101
C-90
E-115
E-120
Rob Roy Substation
Green Valley Substation
Freedom
Pinto Lake
Pinto Lake County Park
Spring Hills Golf Course
Santa Cruz
Los Ban
Salinas
Soledad
N
Feet
0 2,000 4,000
1 inch = 4,000 feet
1:48,000
AECOM
Pacific Gas and Electric Company
Project Components
Cox-Freedom Segment
Existing 115 kV Power Line
Northern Alignment
Substation
Select Pole Location
Source: AECOM 2013
Base Image: ESRI 2013
Santa Cruz 115 kV Reinforcement Project
Figure 1: Project Location Map
July 1, 2013

- **Cox-Freedom Segment**: Extends south from the intersection of Cox Road and Leslie Lane (western extent of the Northern Alignment) following Cox Road, McDonald Road, and Freedom Boulevard southward and terminating at Rob Roy Substation.

The work will occur for the most part within PG&E's existing rights-of-way and consists of the replacement of the existing structures with new tubular steel poles and wooden poles. Some of the work areas also include conductor tension pull sites, staging areas, and helicopter landing zones. Much of the Northern Alignment is overland, while the Cox-Freedom Segment follows existing public roads. Generally, each work site would measure approximately 140 feet by 100 feet, although site dimensions may vary based on scope of work or specific location conditions (e.g., distance from residences, available space, terrain, etc.). As part of the project, Rob Roy Substation will be expanded by approximately 0.5 acre. Some minor equipment replacement work will also be conducted at a limited number of structures along the Green Valley-Camp Evers 115 kV Power Line and Green Valley-Paul Sweet 115 kV Power Line that are adjacent to the project. This equipment replacement work will occur on the existing structures and no ground disturbance will be necessary.

1.1.1 NATURAL HISTORY

The SCLTS is one of five subspecies distributed throughout northeastern California and north into British Columbia (Petranka 1998 in Biosearch 2013; Stebbins 2003; Biosearch and AECOM 2013). The subspecies *croceum* occupies a very small range that is limited to southern Santa Cruz County and extreme northern Monterey County along the coastline. It is isolated from other subspecies by more than 150 miles, and recent genetic analysis indicates that full species status is warranted (Savage, pers. comm., 2011 in Biosearch and AECOM 2013). In addition, genetic analysis within the extant range reveals distinct population segments that are isolated from one another, presumably by State Route (SR) 1 as well as residential and agricultural areas (Savage, pers. comm., 2011 in Biosearch and AECOM 2013). Monterey County and Santa Cruz County populations are completely isolated from each other by urbanization and intensive agriculture in the Pajaro River Valley. Seventeen breeding locales have been identified in Santa Cruz County, some of which may no longer support viable populations (USFWS 2009 in Biosearch and AECOM 2013). Given the extremely small range, barriers to genetic flow between breeding populations, and ongoing habitat fragmentation, the SCLTS is considered very vulnerable to extinction (Savage, pers. comm., 2011 in Biosearch and AECOM 2013).

The SCLTS is a small salamander (2.5 to 5.5 inches total length) that inhabits oak woodland, dense coastal scrub, riparian woodland, and other moist habitats and breeds in ponds and sloughs (Stebbins 2003). Adults and post-metamorphic juveniles (metamorphs) are black with an irregular pattern of yellow-orange spots and stripes along the back. Ventral coloration is dark gray to black, while the sides have a fine white speckling. Females and males are of similar body length, although males possess significantly longer, broader tails. In their aquatic life stage, larval SCLTS are olive gray or brownish gray along their dorsal side with bushy gills and a prominent dorsal fin that extends forward to the forelimbs.

The SCLTS breeds in seasonal, or perennial ponds and sloughs. Breeding sites generally lack exotic predators such as nonnative fish and American bullfrogs (*Lithobates catesbeianus*), which prey upon adults, eggs, and larval salamanders. The few perennial ponds that support both SCLTS and invasive aquatic species have sufficient submergent and emergent vegetative cover to protect eggs and larvae from predation, although survivorship of larvae and recruitment of metamorphs could be reduced. Single eggs are deposited on submergent vegetation. Larvae require approximately 90–150 days to reach transformation (Ruth 1988), and they feed on a

wide variety of aquatic organisms, including invertebrates and tree frog tadpoles (Anderson 1968). The growth rate and timing of metamorphosis vary with water temperature, food levels, larval densities, and hydro-period (Petranka 1998). After metamorphosis in the spring and summer, metamorphs disperse into upland areas—generally within a few hundred feet—and settle within underground vegetative refuge sites. Fall rains as low as 2 millimeters can incite outward-bound dispersal from the breeding habitat (USFWS 1999). Generally, once seasonal rains have sufficiently saturated the ground, fall, winter, and spring migrational movements can be triggered by any precipitation event, especially when occurring at night. During the dry season, SCLTS remain underground in small-mammal burrows and other moist refugia, such as beneath fallen logs or rocks and within plant root systems (Ruth and Tollestrup 1973; Ruth 1988). Although SCLTS are rarely found in their refugia, they are expected to over-summer in the burrow systems, such as those created by broad-handed mole (*Scapanus latimanus*), present in oak woodland and other heavily-vegetated habitats. During the rainy season when individuals disperse or migrate across open habitats, they may temporarily use other cover-sites, including burrows dug by Botta's pocket gopher (*Thomomys bottae*) or California vole (*Microtus californicus*). Burrow entrances and tunnel systems that SCLTS use are generally difficult to locate, because they are typically covered by leaf duff and woody debris. Adult SCLTS remain below ground during the summer months and emerge during rainy nights in the fall and winter to migrate to breeding ponds. Overall migrations typically occur during rainy nights over several days, weeks, or months, with salamanders taking temporary cover as needed during intermittent dry periods. Although grassland does not provide over-summering upland habitat for adults, they may seek temporary cover in grassland areas during fall and winter breeding migrations (Ruth 1989; Biosearch 2002, 2013). In proximity to breeding ponds, metamorphs may seek cover in all types of habitat including grassland, although survivorship is likely higher in more mesic habitats. Recapture data indicate that individuals return to the same upland areas after breeding (Ruth 1989; Biosearch 2002). Terrestrial individuals feed primarily on sow bugs, earthworms, and other invertebrates (Anderson 1968).

2 METHODS

The portion of the project that is located between Green Valley Substation and Site E-41A is outside the documented range of the SCLTS and greater than 1 mile from the nearest breeding pond (Merk Pond). Although patches of aquatic and upland habitat suitable for SCLTS can be occasionally found east of Site E-41A, no detections have been observed inland of Merk Pond (approximately 4 miles inland). Furthermore, these areas and the Corralitos Valley do not support the necessary aquatic or vegetated upland habitats required by SCLTS and are highly fragmented by the presence of agricultural and residential developments, which create physical barriers that prevent dispersal, migration, and use of the land as upland habitat. As such, this portion of the project was not evaluated as part of Biosearch's Habitat Assessment.

The remaining portion of the project alignment—between Site E-42/C-38 and Rob Roy Substation—is located along the edge of the SCLTS Freedom metapopulation and within 1 mile of known or potential breeding sites. As such, this portion of the project was further evaluated in Biosearch's habitat assessment.

This site assessment conducted by Biosearch follows an adapted approach to the *Guidance on Site Assessment and Field Surveys to Detect Presence or Report a Negative Finding of the Santa Cruz Long-toed Salamander* endorsed by USFWS and CDFW (USFWS and CDFW 2012; Biosearch and AECOM 2013). Three major elements were evaluated to determine the likelihood of SCLTS presence:

1. A determination as to whether the project site is within the range of the SCLTS
2. A review of known records for SCLTS within 3.1 miles of the project
3. An assessment of the suitability of project areas located within 1 mile of known or suitable SCLTS breeding habitats

2.1 RECORDS AND LITERATURE REVIEW

To determine whether the project site is within the range of the SCLTS, as well as review known records for SCLTS within 3.1 miles of the project, Biosearch reviewed relevant literature and databases for information regarding SCLTS near the project area. The California Natural Diversity Database, which is maintained by CDFW, was searched for all recorded occurrences within 3.1 miles of the project. Previous field investigations and assessments in the project area were consulted (Biosearch and AECOM 2013). Other biologists with SCLTS experience were contacted for additional information. Through the use of the collected information, all known SCLTS localities within 3.1 miles of the project site were identified and mapped, as shown in Figure 2. In addition, topographic maps, aerial imagery, and Biosearch's knowledge of the area were used to identify and assess the quality of potential SCLTS aquatic breeding sites. There are numerous records of SCLTS within 3.1 miles of the project site. This distance encompasses all detections that have been made within the Freedom, Larkin Valley, and Valencia-Seascape metapopulations, including both upland and breeding detections. Most of these records are associated with nearby known breeding localities, although some are located up to 0.8 mile from the nearest known breeding pond. The preponderance of observations from the Valencia-Seascape metapopulation reflects the fact that those areas have been studied more extensively with upland trapping arrays than other metapopulations (Biosearch and AECOM 2013). SCLTS have not been observed north of Freedom Boulevard in the Day Valley area or west of Freedom Boulevard in the Valencia Creek area (Biosearch and AECOM 2013).

The known SCLTS breeding ponds within 3.1 miles are Merk Pond, Tucker Pond, Palmer Pond, Racehorse Lane Pond, Millsap Pond, Calabasas Pond, Seuss Pond, Olive's Pond, Winterwind Way Pond, Valencia Lagoon, and Seascape Uplands Ponds 1–3. A detailed description of these ponds is included in Appendix A

Several additional aquatic features that provide suitable habitat for SCLTS, but are not confirmed breeding sites, exist within 1 mile of the project alignment. These are mostly unnamed aquatic features located on private properties and for which no appropriate surveys have been conducted. Details regarding these ponds are included in Appendix A.

2.2 FIELD ASSESSMENT

As part of Biosearch's habitat assessment, wildlife biologists David Laabs and Mark Allaback conducted field visits to each proposed work area and access road within approximately 1 mile of known or potential breeding habitat (all workspaces west of and including Poles C-38/E-42) on May 21–23, May 28, and June 4, 2013. All locations were visited on foot and representatives of PG&E and/or AECOM were present throughout their site visits. The area of the field assessments included all project locations between Rob Roy Substation and 1 mile east of Merk Pond, which is considered the eastern edge of the SCLTS range (USFWS 1999, 2009 in Biosearch and AECOM 2013). To determine whether specific project work areas provide suitable habitat for SCLTS, the following characteristics of the upland habitat at each proposed work area were described:

- Vegetation coverage and understory composition
- Habitat connectivity between the proposed work area and known/potential breeding sites
- Distance to the nearest known and potential breeding site
- Site conditions that would prevent presence of SCLTS individuals

Photographs of each proposed work area were taken and are shown in Appendix B. Detailed habitat characteristics collected at each site is provided in Appendix C. Because the burrow characteristics of small mammals found in oak woodland and coastal scrub habitats are difficult to see, the presence of burrows was not used as a criterion for SCLTS habitat quality.

Each proposed work site and access road, west of site E-42/C-38, was classified as providing either upland habitat, dispersal habitat, or disturbed dispersal habitat. For the purposes of Biosearch's assessment, SCLTS upland habitat was defined as oak woodland, willow riparian, and dense coastal scrub. It was presumed that upland habitat may be occupied by SCLTS year-round, and may be utilized for underground refugia and dispersal. Dispersal habitat was defined as open habitats that migrating adults and dispersing juveniles may use temporarily for cover during the rainy season, but that lacks suitable cover or habitat characteristics to be utilized in the dry season. Dispersal habitat may include grassland, open coastal scrub, and oak savanna. These habitats may support small mammal burrows that can be used by SCLTS as temporary refugia during the rainy season, but are not suitable for dry season refuge. Disturbed dispersal habitat includes all areas that could be traversed by migrating SCLTS, but do not provide any temporary underground refugia. This includes ruderal roadsides, active agricultural areas, and other areas denuded of natural vegetation.

3 RESULTS

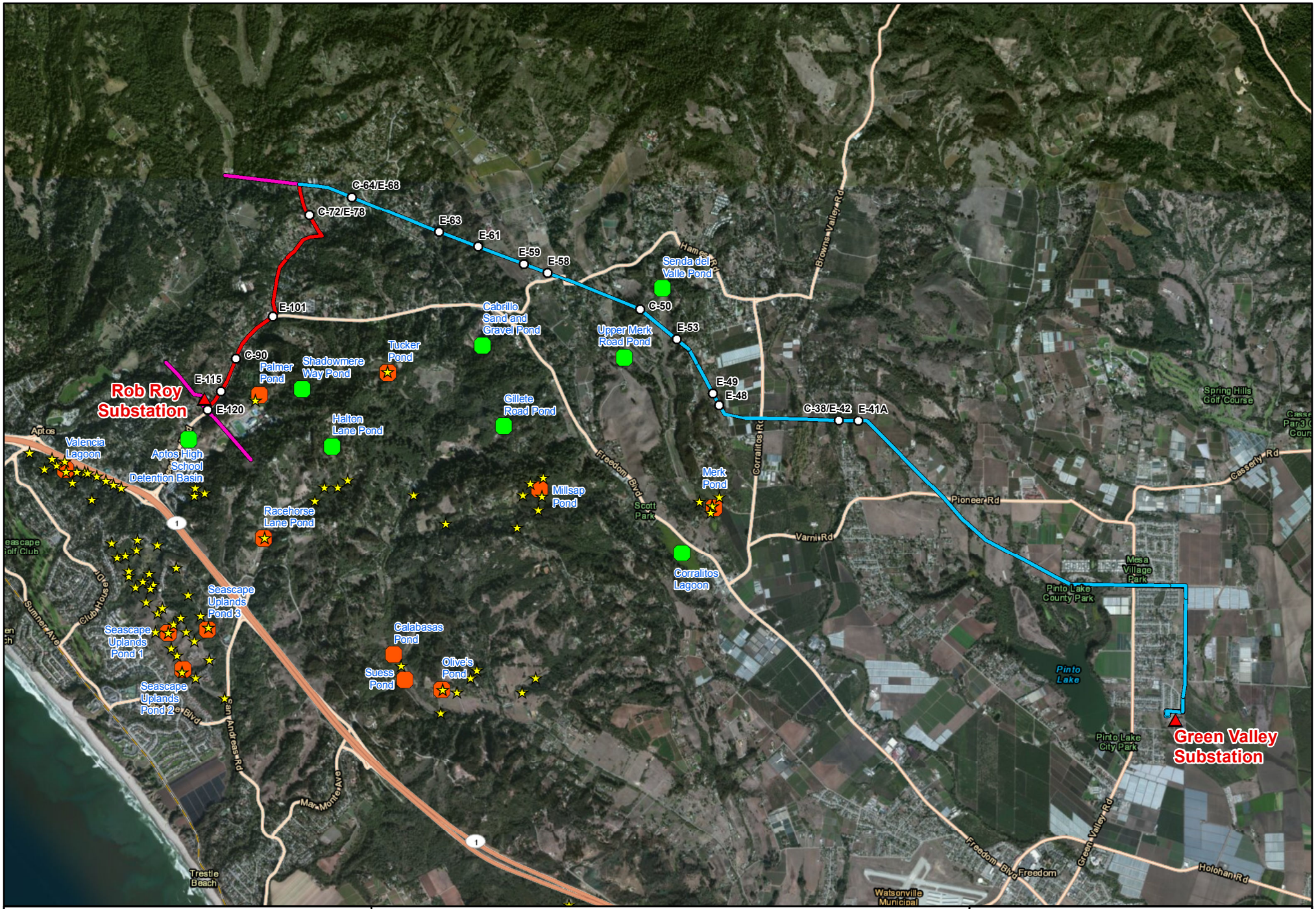
Several vegetation communities are present along the project corridor, specifically coast live oak woodland, coastal scrub, annual grassland, riparian woodland, nonnative woodland (typically *Eucalyptus* spp.), and ruderal habitats. The topography is hilly with elevations ranging from 70 feet to 600 feet above sea level. Much of the Northern Alignment and Cox-Freedom Segment pass through areas that have been converted to agriculture and/or low-density rural residential uses, or are located along paved roads. For more detailed information regarding the vegetation communities found along the project alignment, refer to the Biological Resources Technical Report (Insignia Environmental 2012).

3.1 RECORDS AND LITERATURE

All portions of the Northern Alignment west of Site E-42, as well as the northernmost portions of the Cox-Freedom Segment are located within the northern and eastern edges of the SCLTS Freedom metapopulation (USFWS 1999, 2009 in Biosearch and AECOM 2013). The Freedom metapopulation utilizes a complex of breeding sites that include Tucker Pond (0.8 mile east of the Cox-Freedom Segment), Racehorse Lane Pond (0.4 mile southeast of Rob Roy Substation), Palmer Pond (0.2 mile east of the Cox-Freedom Segment), and Merk Pond (0.5 mile southwest of the Northern Alignment). The locations of these ponds relative to the project alignment are shown in Figure 2.

The known breeding range in Santa Cruz County is defined to the east by Merk Pond, to the north by Tucker Pond, to the west by Valencia Pond, and to the south by Ellicott and Anderson Ponds. The portion of the Northern Alignment between Green Valley Substation and Pole E-41A is greater than 1 mile from Merk Pond and therefore considered to be outside the range of the SCLTS. Although patches of marginal SCLTS aquatic and upland habitat are present in this area, the landscape is highly fragmented due to various types of commercial, farming/agricultural, and residential land uses. These areas also lack connectivity with other suitable habitat and lack native vegetation cover such as scrub and woodland, which provide suitable upland habitats that would otherwise support the subspecies. In addition, the intensive agricultural use of the land south of Corralitos Valley represents a significant migratory barrier to eastward movement of salamanders. Furthermore, the species is limited throughout its range to coastal areas, and no breeding sites are known or have been recorded more than 5 miles inland from the coast.

The remainder of the Northern Alignment west of Poles E-42/C-38 is located within or at the edge of the range of the SCLTS and is within 1 mile of a known or potential breeding site; however, SCLTS has not yet been observed north of Freedom Boulevard in the Day Valley area, or west of Freedom Boulevard in the Valencia Creek area (where the project is located). Work sites between Poles C-64/E-68 and C-72/E-78, near the junction of the Northern Alignment and the Cox-Freedom Segment, are assumed to be outside the range of the SCLTS, as they are located at a distance greater than 1 mile from the nearest known or potential breeding pond. The remaining work areas along the Cox-Freedom Segment are located at the edge of the range of SCLTS, but are within 1 mile of a known or potential breeding pond.



Santa Cruz 115 kV Reinforcement Project

Figure 2: SCLTS Occurrence and Habitat Map
July 1, 2013

3.2 FIELD ASSESSMENT

The project alignment crosses a variety of habitats including oak woodland, grassland, coastal scrub, eucalyptus grove, and properties converted to agricultural and/or residential use. A detailed analysis of the upland habitat characteristics at each proposed work area, adapted from Biosearch's Habitat Assessment, is provided in Appendix C. Photographs of each proposed work area are provided in Appendix B. Based on the data collected in their report, it was determined that of 131 total project areas reviewed within 1 mile of a known or suitable SCLTS breeding pond, 37 work areas and five overland access routes contain suitable upland habitat in which the species could seek cover during the dry season.

Seventy-three proposed work areas and access routes are located in areas only suitable for dispersal, including grasslands, open coastal scrub, agricultural fields, landscaped yards, or areas denuded of vegetation. Although SCLTS could be encountered at these sites during juvenile dispersal or adult breeding migration in the wet season (typically October 15–April 15), no suitable upland habitat is present within these areas. As such, SCLTS are not expected to be encountered during the dry season in these dispersal habitats.

The remaining 16 sites were located within a portion of Corralitos Valley determined to be unsuitable for the species due to the lack of suitable dispersal habitat caused by large and expansive tracts of contiguous agriculture. While they may have been located within 1 mile of Merk Pond, this area was located east beyond the furthest known SCLTS occurrences and lacked suitable habitats for the species. As such, the area was determined not to support the species.

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4 DISCUSSION AND CONCLUSIONS

As previously discussed, much of the project alignment is located near the northern and eastern limits of the SCLTS range in Santa Cruz County. The portion of the Northern Alignment greater than 1 mile east of Merk Pond (from Green Valley Substation to Pole E-41A) is outside the range of the subspecies, and the majority of the project alignment west of Poles C-38/E-42 is located within 1 mile of a known or potential breeding pond and is considered within the potential subspecies' range. However, a short segment (0.8 mile) in the Day Valley area between Poles C-64/E-68 and C-72/E-78 is located greater than 1 mile from known or potential breeding habitat and is considered to be outside the range of the subspecies.

Freedom Boulevard, Hames Road, and Corralitos Road have been used to define the northern and eastern limits of the SCLTS range in Santa Cruz County. Freedom Boulevard is a significant transportation corridor between Aptos and the Corralitos/Watsonville area that is considered a partial barrier to regular movements of SCLTS, which are susceptible to death by vehicle collision. Although no complete physical barriers are associated with Freedom Boulevard, the amount of traffic is considered heavy enough to significantly prevent or interrupt migrating SCLTS, which further decreases the likelihood of SCLTS inhabiting many of the project areas (Biosearch and AECOM 2013).

The distances that SCLTS travel between breeding ponds and upland habitats vary between sites and depend on the vegetation structure and composition, soil type, aspect, and barriers to movement (USFWS 1999 in Biosearch 2013; Savage, pers. comm., 2011 in Biosearch and AECOM 2013). Early researchers observed SCLTS that appeared to be more than 1 mile from the nearest known breeding site; however, it is unknown whether these individuals were associated with breeding sites not identified at the time (USFWS 1999 in Biosearch and AECOM 2013). The distribution of adults of the closely related California tiger salamander (*Ambystoma californiense*) decreases exponentially as distance to the breeding pond increases (Trenham and Shaffer 2005), and it is expected that SCLTS follow a similar pattern. As such, the likelihood of encountering SCLTS decreases significantly as the distance from breeding habitat increases.

Long-distance movements of SCLTS depend on relatively contiguous areas of suitable habitats. At locations that consist of a mosaic of coastal scrub, oak woodland, and grassland, which is common throughout the range of SCLTS, adults regularly cross up to 0.25 mile of grassland and open coastal scrub during migration between the breeding site and appropriate uplands (Ruth 1989; Laabs 2000; Biosearch 2002). Most of the suitable SCLTS upland habitat present along the project alignment is fragmented and not contiguous with known SCLTS breeding ponds. This fragmentation reduces the potential for SCLTS to migrate to portions of the project area. The exceptions to this statement are the fairly well-vegetated upland corridors between Merk Pond and Poles E-49 through E-53, between Tucker Pond and Poles E-61 through E-63, and between Palmer Pond and Poles E-101 through E-120.

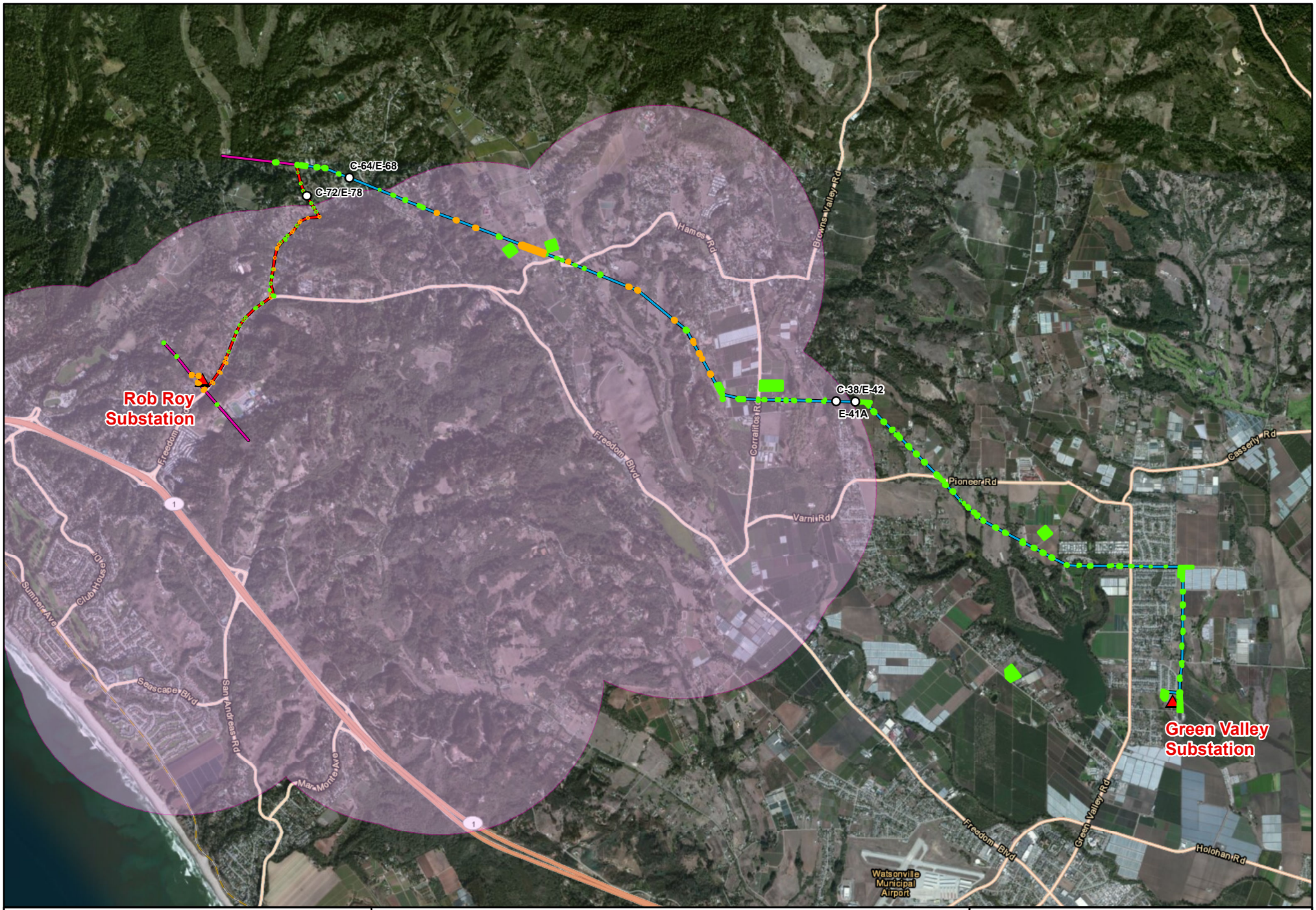
Given that the project would involve localized surface disturbances confined to small work areas at the fringes of the range of SCLTS, the potential to encounter SCLTS at any specific location is considered low (Biosearch and AECOM 2013).

4.1 IMPLEMENTATION OF FENCING

Based on an analysis of the habitat at each project work area within 1 mile of a known or potential pond, up to 37 sites provide potential upland habitat for SCLTS, and thus could support the species during the dry season when construction will be occurring, as shown in Figure 3. As such, fencing enclosures should be installed at these sites to avoid take of SCLTS. At 10 of these 37 sites, which are mostly along the Cox-Freedom Segment, suitable SCLTS upland habitat is present at the fringes of the work area and may be avoidable, pending constructability review. Suitable upland habitat is also present along five overland access routes. Fencing will not be implemented in these locations; however, other measures may be warranted.

Based on Biosearch's data, it was also determined that 73 proposed work areas and access routes are located in dispersal habitats that lack suitable upland habitat characteristics, including grasslands, open coastal scrub, agricultural fields, landscaped yards, or areas denuded of vegetation. SCLTS have the potential to be encountered at these sites during juvenile dispersal or adult breeding migration in the wet season; however, they lack necessary upland habitat characteristics necessary for dry season refuge. As such, SCLTS would not be present during the dry season, and no fencing is necessary at these locations during dry season construction work.

The remaining 16 locations within portions of eastern Corralitos Valley were determined to be outside the range of the SCLTS due to a lack of contiguous habitats between the area and known breeding ponds. While some of these areas lie within 1 mile of Merk Pond, no dispersal corridors exist between Merk Pond and these sites to allow SCLTS to inhabit or disperse through these areas. Because these areas are at the eastern extent of the local population range, and no other source ponds are available to support SCLTS in the area, SCLTS does not occur in these locations and no fencing is warranted to avoid take.



N

Feet
0 2,000 4,000
1 inch = 4,000 feet
1:48,000

AECOM

Pacific Gas and Electric Company

Cox-Freedom Segment
Existing 115 kV Power Line
Northern Alignment
Substation

Work Areas*
No Fencing
Fencing
Select Pole Location

* Work area boundaries are enlarged for visual purposes of this map

Potential Area for SCLTS Occurrence
1-mile buffer around known or suitable breeding habitat

Source: AECOM 2013
Base Image: ESRI 2013

Santa Cruz 115 kV Reinforcement Project

Figure 3: SCLTS Fencing Implementation Map
July 1, 2013

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5 CITATIONS

Anderson, J. D. 1968. *A comparison of the food habits of Ambystoma macrodactylum sigillatum, Ambystoma macrodactylum croceum, and Ambystoma tigrinum californiense).* Herpitologica 24:273–284.

Biosearch Associates (Biosearch). 2008. *Santa Cruz long-toed salamander study, Valencia Lagoon and adjacent drainage channel, Santa Cruz, California (Research Agreement 0600245).* Submitted to UC Davis Information Center for the Environment.

_____. 2012. *Annual monitoring report (2012), Tucker Pond Habitat Conservation Plan & Federal Fish and Wildlife Permit TE-142277-0, Santa Cruz County, CA.* Prepared for U.S. Fish and Wildlife Service. Dated 30 December 2011.

_____. 2013. *Santa Cruz long-toed salamander study, PG&E strength test segment T-174, Santa Cruz County, California. Santa Cruz, CA.* Prepared for CH2M Hill, Oakland, CA, and Ventura Fish and Wildlife Office, Ventura, CA. Dated 6 May 2013.

Biosearch Associates and AECOM. 2013. *Santa Cruz Long-toed Salamander Habitat Assessment, PG&E Santa Cruz 115 kV Reinforcement Project,* Santa Cruz County, California. Prepared for Pacific Gas and Electric Company, San Francisco, CA. Dated 20 June 2013.

California Department of Fish and Wildlife (CDFW). 2013. California Natural Diversity Database. Biogeographic Data Branch, Sacramento, CA.

D'Amore, N. 2012. Postdoctoral Researcher and Adaptive Management Process Lead Tidal Wetland Project—Elkhorn Slough National Estuarine Research Reserve. Electronic message communication, 11 January 2012.

Insignia Environmental, Inc. 2010. *Biological Constraints Assessment for Santa Cruz Reinforcement Project.* Prepared for Pacific Gas and Electric Company. Dated December 2010.

_____. 2011. *Protocol-level California red-legged frog survey report for the Pacific Gas and Electric Company Santa Cruz 115 kV Reinforcement Project*. Prepared for U.S. Fish and Wildlife Service. Dated September 2011.

_____. 2012. *Santa Cruz 115 kV Reinforcement Project Preliminary Draft Biological Resources Technical Report.* Prepared for Pacific Gas and Electric Company. Dated January 2012.

Laabs, D. 2000. Seascape Uplands 1998-99 biological monitoring reports for Federal Fish and Wildlife Permit PRT-749374, Aptos, Santa Cruz County, CA. Prepared for Center for Natural Lands Management and U. S. Fish and Wildlife Service.

Miller, S. 2001. Outdoor educator. 29 March 2001—telephone conversation.

Petranka, J. W. 1998. *Salamanders of the United States and Canada*. Smithsonian Institution Press, Washington and London.

Ruth, S. B. 1988. *The life history and current status of the Santa Cruz long-toed salamander (Ambystoma macrodactylum croceum*). In: De Lisle, H. F., P. R. Brown, B. Kaufman, and B. M. McGurty (eds.), Proceedings of the Conference on California herpetology, Southwestern Herpetologists Society, Van Nuys, CA. Special Publication No. 4.

_____. 1989. Seascape uplands Santa Cruz long-toed salamander study. Science Research and Consulting Services. Marina, CA. Unpublished report, 159 pp.

Ruth, S. B., and K. Tollestrup. 1973. *Aspects of the life history and current status of the Santa Cruz long-toed salamander (Ambystoma macrodactylum croceum) at Valencia Lagoon, Santa Cruz County, California*. Unpublished student report, Museum of Vertebrate Zoology, University of California, Berkeley. 40 pp.

Savage, W. 2011. Postdoctoral Researcher, Boston University, Boston, MA. Electronic message communication, 14 November 2011.

Stebbins, R. C. 2003. *A field guide to western reptiles and amphibians*. Houghton Mifflin Co., Boston, MA.

Trenham, P. C., and H. B. Shaffer. 2005. Amphibian upland habitat use and its consequences for habitat viability. Ecological Applications 15(4):1158–1168.

U.S. Fish and Wildlife Service (USFWS). 1999. Santa Cruz long-toed salamander (Ambystoma macrodactylum croceum) draft revised recovery plan. Region 1.

_____. 2009. Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), 5-year review: summary and evaluation. Ventura Fish and Wildlife Office, Ventura, CA. Dated May.

U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (USFWS and CDFW). 2012. *Guidance on site assessment and field studies to determine presence or report a negative finding of the Santa Cruz long-toed salamander*. Unpublished report. Ventura and Sacramento, CA. Dated December 2012.

APPENDIX A

SCLTS Breeding Ponds Tables

Appendix A1 Known SCLTS Breeding Ponds within 1 Mile of the Project	
Name of the Pond/aquatic feature	Description
Merk Pond	This pond is situated approximately 0.4 mile south of the Northern Alignment near the intersection of Merk Road and Corralitos Road. It is currently the only known breeding pond east of Freedom Boulevard. It is a large, perennial pond with extensive emergent marsh vegetation in shallow areas. A breeding population of SCLTS was first identified in the 1990s based on observations of dispersing metamorphs during rainy-night surveys (Miller, pers. comm., 2001 in Biosearch and AECOM 2013). The site was studied more extensively in 2003 and 2005 although the population size could not be estimated (Savage, pers. comm., 2011 in Biosearch and AECOM 2013; D'Amore, pers. comm., 2012 in Biosearch and AECOM 2013). It is known that the pond also supports predators such as American bullfrogs, catfish (*Ictalaurus* spp.), and bluegill (*Lepomis macrochirus*) so the breeding success of the SCLTS are likely lower than if predators were not present. In addition, the properties surrounding Merk Pond are developed and used for either agricultural or residential purposes; therefore, the upland and dispersal habitat present within some remaining patches of oak woodland, willow riparian, and dense coastal scrub is highly fragmented.
Tucker Pond	This semi-permanent pond (i.e. dries out in some years) is located approximately 0.9 mile south of the Northern Alignment. This is a documented successful SCLTS breeding pond, managed under the terms of a USFWS-approved Habitat Conservation Plan. An ongoing population monitoring program has confirmed annual breeding between 2008–2009 and 2011–2012 (Biosearch 2012). The properties between Tucker Pond and the project work areas present fragmented habitat with interspersed residential development and native habitat (Day Valley).
Palmer Pond	This seasonal pool is located within a seasonal drainage adjacent to Aptos High School, approximately 0.25 mile east of Rob Roy Substation. Since the time of discovery in 2004, no follow-up surveys have been conducted to confirm whether the SCLTS regularly uses this feature as a breeding site (USFWS 2009). The feature does not appear to hold water long enough to allow for successful metamorphosis of larvae, and it is believed that SCLTS in this area may use Shadowmere Way Pond situated approximately 0.2 mile east, on private property, north of Aptos High School. The oak woodland habitat present between this pond and the project area is almost contiguous although Freedom Boulevard represents a partial barrier preventing or reducing movements toward the project areas.
Racehorse Lane Pond	This manmade stock pond is located adjacent to Racehorse Lane in Larkin Valley and approximately 0.9 mile southeast of Rob Roy Substation. SCLTS larvae were first identified there in 2005 and breeding was last confirmed in 2008. The oak woodland habitat present between this pond and the project area is almost contiguous, although both Aptos High School and Freedom Boulevard represent partial barriers preventing or reducing movements toward the project areas.
Valencia Lagoon	Valencia Lagoon is a large semi-permanent remnant of a historic freshwater lagoon. This lagoon is located approximately 0.9 mile southwest of Rob Roy Substation. SCLTS were originally detected at this site in 1954, and the research associated with this detection led to the description of the subspecies *croceum*. The original natural lagoon was highly modified in 1969 by the expansion of SR 1 and is currently a semi-permanent pond on a small strip of land managed by CDFW. A nearby drainage channel that parallels SR 1, managed by the California Department of Transportation, also supports documented breeding. SCLTS was studied at both locations in 2007 and 2008 (Biosearch 2008) and was confirmed on-site in 2011. However, the section of SR 1 between Rio del Mar Boulevard and Freedom Boulevard represents a complete barrier to SCLTS movements, and individuals that breed at Valencia Lagoon do not have any dispersal or migratory connectivity with the project area.

Appendix A1 Known SCLTS Breeding Ponds within 1 Mile of the Project	
Name of the Pond/aquatic feature	Description
Seascape Uplands: Ponds 1, 2, and 3	These three ponds are located in the Seascape Uplands Preserve, which is managed by the Center for Natural Lands Management. SCLTS were first detected at Seascape Uplands Pond 1 in 1974 and have been monitored annually since 1998. Seascape Uplands Ponds 2 and 3 were constructed as part of a mitigation requirement in 1999 and were both colonized by SCLTS within a few years. SR 1 presents a barrier to northeast migration; therefore, individuals in the Seascape Uplands Preserve do not have any dispersal or migratory connectivity with the project area.

Appendix A2 Unsurveyed Suitable SCLTS Breeding Ponds within 1 Mile of the Project	
Name of the Pond/Aquatic Feature	Description
Corralitos Lagoon	This lagoon, also referred to as Freedom Lake, is situated 0.75 mile south-southeast of Pole E-48. It is a 25-acre lake with abundant submergent and emergent vegetation. While the lake was historically used for recreational fishing, in recent years, the surface has been covered by water hyacinth (*Eichhornia* sp.) and is no longer accessible by boat. It is unknown whether the lake still supports fish or native amphibians.
Senda del Valle Road Pond[1]	Senda del Valle Road Pond is located north of the northern extent of Senda del Valle Road and is situated 0.2 mile northeast of poles C-50 and E-48. This pond was studied in 2011 as part of protocol-level surveys for the California red-legged frog (*Rana draytonii*) conducted for the project (Insignia Environmental 2011). These surveys revealed a robust population of mosquitofish (*Gambusia affinus*), American bullfrogs, and Louisiana red swamp crayfish (*Procambarus clarkii*), which are nonnative predators for SCLTS. The presence of such predators reduces the likelihood for the pond to provide breeding habitat for SCLTS; it is assumed that if SCLTS had to use the site, the larvae and/or juveniles would likely be predated and therefore the pond would result in an unsuccessful breeding site. It is important to note that Merk Pond, which does support a breeding SCLTS population, also contains introduced predators as mentioned above. However, Merk Pond is larger and supports more complex characteristics, such as a shallow-perimeter and presence of emergent marsh vegetation that may partially shelter the larvae and/or juveniles from predators.
Upper Merk Road Pond[1]	Upper Merk Road Pond is located on private property along Upper Merk Road and is situated 0.3 mile south-southeast of Site C-50. This pond was not visited as part of Biosearch's assessment due to access restriction. This pond is located within the same watershed as Merk Pond. It appears to hold water year-round and is surrounded by wetland vegetation. Based on its emergent vegetation characteristics, this pond provides suitable breeding habitat for SCLTS, although it is unknown if the pond supports aquatic predators that could impact the breeding success of the site.
Gillette Road Pond[1]	Gillette Road Pond is situated 1 mile south-southeast of Site E-58 and was not visited as part of Biosearch's assessment because of restricted access. This pond is located in the same watershed as Tucker Pond, and the two ponds are connected by suitable upland and dispersal habitat. By reviewing historical images of this site, it is assumed that the pond is permanent and provides suitable SCLTS breeding habitat.

Appendix A2 Unsurveyed Suitable SCLTS Breeding Ponds within 1 Mile of the Project	
Name of the Pond/Aquatic Feature	Description
Cabrillo Sand and Gravel Pond[1]	Cabrillo Sand and Gravel Pond is located on the south side of Freedom Road close to the intersection with Hames Road, and is situated 0.5 mile south-southeast of Pole E-59. This pond was not visited as part of Biosearch's assessment due to restricted access, but, based on historical imagery, it appears to have been constructed in 2009 and likely covered with emergent vegetation. The colonization of artificial ponds can occur within 1 year when connectivity exists with nearby populations. Upland habitat surrounding the pond is suitable for SCLTS, and the upland habitat is connected with Tucker Pond, which is situated only 0.6 mile to the west. This pond likely provides suitable SCLTS breeding habitat.
Shadowmere Way Pond[1]	This pond is located above Aptos High School off Shadowmere Way and is situated 0.4 mile southeast of Pole C-90. It was not visited as part of Biosearch's assessment because of restricted access. The pond is within the same watershed that supports Palmer Pond. Based on historical images, this pond appears to dry out and therefore likely lacks predatory nonnative species. Wildlife biologist Mark Allaback was granted permission to conduct reconnaissance-level visits in 2004 and 2010 of this pond. Given the physical characteristics and upland habitat connectivity with Palmer Pond, Tucker Pond, and Racehorse Lane Pond, this site could support breeding SCLTS.
Halton Lane Pond[1]	This pond is located 0.7 mile southeast of Pole E-115 and was not visited as part of Biosearch's assessment because of access restrictions. Based on topographic data, this pond is within the same watershed as Racehorse Lane Pond, and from historical imagery it is assumed that it is perennial. This pond contains suitable SCLTS breeding habitat.
Aptos High School Detention Basin	This basin is situated 0.2 mile southwest of Pole E-120, is visible from Freedom Road, and was visited as part of Biosearch's assessment. It was constructed in 2004 as a sediment basin associated with construction activities occurring at Aptos High School. The basin is shallow although it appears to hold water for most of the year and throughout the amphibian breeding season. It supports emergent freshwater marsh vegetation. Given its habitat characteristics and proximity to known breeding sites, this pond provides suitable SCLTS breeding habitat.

Note:

[1] No commonly accepted name is known. These names are presented for the purposes of this document only.

APPENDIX B

Representative Photographs



C-38/E-42



Amesti Road Guard Structure



C-39



E-43



C-40



E-44



C-41



Corralitos Road Staging Area



Corralitos Road Guard Structure



E-45



C-42/E-46



E-47

 C-43	 Pull site between C-43 & C-44
 C-44/E-48	 C-45/E49



C-46



E-50



C-47/E-51



C-48/E-52



C-49/E-53



C-50/E-54



C-51/E-55



Hames Hollow Guard Structure



C-52/E-56



C-53/E-57



Pleasant Valley Road Guard Structure



Hames Road Guard Structure



Hames Road Landing Zone



C-54/E-58



Pull site between C-54 & C-55



C-55/E-59



Hames Road Staging Area



C-56/E-60



C-57/E61



C-58/E-62

 C-59/E-63	 Quail Run Guard Structure
 C-60	 E-64



C-61/E-65



C-62/E-66



C-63/E-67



C-64/E-68



C-65/E-69



C-66/E-70



C-67/E71



Cox Road Pull Site



C-68/E-71A



E-72



C-69/E-74



C-70/E-76



C-71/E-77



C-72s



C-72/E-78



C-73/E-80



CD-81/E-81



C-74/E-82



C-75



C-76/E-85



CD-86/E-86/C-77



CD-87/E-87



C-78/E-88



CD-89/E-89



C-79



CS-90



CD-90/E-90



CD-91/E-91

 CD-92/E-92	 C-80
 E-92A	 C-81/E-94



C-81s



C-82/E-96



CD-97



C-83/E-98

 CD-99	 CD-100
 C-84	 CD-101



C-85/E-101



E-103



C-86



C-87

 CD-105	 C-88/E-106
 C-89/E-108	 C-90/E-109



C-91/E-111



CD-112



C-92s



C-92/E-113

 C-93s	 C-93/E-115
 C-94s	 C-94



C-95/E-120



C-75A/C-96



C-76A



C-76C

	
GV(RR)-PS C-77	GV(RR)-PS C-78
	
GV-PS(RR) C-75	Rob Roy Substation Expansion Area



C-39 Access



C-41 Access



C-42 Access



C-45/E-49 Access



C-49 Access



C-53 Access



C-55 Access



C-56 Access



C-57 Access



C-58 Access



C-61 Access



C-64 Access



C-66 Access



C-95 Access



C-76A Access



C-76C Access

APPENDIX C

Habitat Suitability Tables

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
Amesti Road	Contractor Storage Yard	2.1	3.2	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
Green Valley Substation	Contractor Construction Yard	3.1	4.1	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-01	Pole Work Area	3.0	4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-02	Pole Work Area	3.0	4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-03	Pole Work Area	3.1	4.1	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-04	Pole Work Area	3.1	4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-05	Pole Work Area	3.0	4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-06	Pole Work Area	3.0	3.9	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-07	Pole Work Area	3.0	3.9	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-08	Pole Work Area	3.0	3.8	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-09	Pole Work Area	2.9	3.8	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-10	Pole Work Area	2.9	3.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-11	Pole Work Area	2.9	3.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
Pull Site between C-11 and C-12	Tension Pull Site	2.9	3.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-12	Pole Work Area	2.9	3.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-13	Pole Work Area	2.8	3.6	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-14	Pole Work Area	2.7	3.5	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-15	Pole Work Area	2.6	3.4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-16	Pole Work Area	2.5	3.4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
E-16	Pole Work Area	2.5	3.3	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-17	Pole Work Area	2.5	3.3	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-18	Pole Work Area	2.3	3.2	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-19	Pole Work Area	2.3	3.1	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-20	Pole Work Area	2.2	3.1	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-21	Pole Work Area	2.1	3	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
E-22	Pole Work Area	2.1	2.9	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-22	Pole Work Area	2.0	2.8	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
Kliewer Lane	Landing Zone	2.0	2.8	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-23	Pole Work Area	1.9	2.8	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-24	Pole Work Area	1.8	2.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-25	Pole Work Area	1.7	2.6	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-26	Pole Work Area	1.7	2.5	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-27	Pole Work Area	1.6	2.4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
E-29	Pole Work Area	1.6	2.3	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-28	Pole Work Area	1.5	2.3	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
E-30	Pole Work Area	1.5	2.3	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-29	Pole Work Area	1.5	2.2	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
E-32	Pole Work Area	1.4	2.2	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-30	Pole Work Area	1.4	2.1	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-31	Pole Work Area	1.3	2	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-32	Pole Work Area	1.2	1.9	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
E-36	Pole Work Area	1.2	1.9	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-33	Pole Work Area	1.2	1.8	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
E-38	Pole Work Area	1.1	1.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-34	Pole Work Area	1.1	1.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-35	Pole Work Area	1.1	1.6	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-36	Pole Work Area	1.1	1.5	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
Pull Site	Tension Pull Site	1.1	1.5	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-37	Pole Work Area	1.1	1.4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.	No
C-38/E-42	Pole Work Area	0.9	1.4	Disturbed/coastal scrub/oak woodland	Portion of work area with canopy of live oak and Monterey pine; understory moderately dense with ferns, poison oak, broom.	No connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	Although the work area provides suitable SCLTS upland habitat, there are no contiguous dispersal corridors between the site and suitable breeding habitat. SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species.	No
Amesti Road Guard Structure	Guard Structure	0.8	1.3	Ruderal (roadside)/oak woodland	Ruderal, disturbed roadside areas; with trimmed oak trees on east side of Amesti Road. West side of Amesti Road contains a cleared area.	No connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	No upland habitat present; work area provides disturbed SCLTS dispersal habitat, but there are no contiguous dispersal corridors between the site and suitable breeding habitat. SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species.	No
C-39	Pole Work Area	0.8	1.2	Oak woodland/grassland	Work area partially covered by grassland and partially covered by live oaks and dense understory of poison oak.	No connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	Although the work area provides suitable upland habitat, there are no contiguous dispersal corridors between the site and suitable breeding habitat. SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
E-43	Pole Work Area	0.7	1.1	Agriculture/riparian woodland	Disked field at edge of relatively undisturbed riparian corridor along Corralitos Creek.	No connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	Majority of work area lacks suitable upland habitat. Marginal upland habitat is present within a small patch of riparian vegetation. SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species.	No
C-40	Pole Work Area	0.7	1.1	Residential/agriculture	Residential backyard with mowed lawn, disked field, and landscaped trees; limited or no ground cover present.	Limited connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	No upland habitat present; work area could provide disturbed dispersal habitat; however, SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species..	No
C-44	Pole Work Area	0.6	1	Residential/agriculture	Residential backyard with landscaping, compacted bare dirt, and driveways.	Limited connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	No upland habitat present; work area could provide disturbed dispersal habitat; however, SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species..	No
C-41	Pole Work Area	0.6	0.9	Agriculture	Commercial apple orchard; limited understory vegetation present.	Limited connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	No upland habitat present; work area provides disturbed dispersal habitat; however, SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species..	No
Corralitos Road Staging Area	Staging Area/Landing Zone	0.7	0.8	Agriculture	Active strawberry field.	Limited connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	No upland habitat present; work area provides disturbed dispersal habitat; however, SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species.	No
Corralitos Road Guard Structure	Guard Structure	0.5	0.8	Agriculture	Orchard; limited or no understory vegetation present.	Limited connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	No upland habitat present; work area provides disturbed dispersal habitat; however, SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species.	No
E-45	Pole Work Area	0.5	0.8	Ruderal/agriculture	Ruderal roadside adjacent to active agricultural fields.	Limited connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	No upland habitat present; work area provides disturbed dispersal habitat; however, SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-42/E-46	Pole Work Area	0.5	0.7	Agriculture	Active blackberry field.	Limited connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by active agriculture.	No upland habitat present; work area provides disturbed dispersal habitat; however, SCLTS is not expected to migrate across Corralitos Valley due to the agricultural use of the land that creates a dispersal barrier for the species.	No
E-47	Pole Work Area	0.5	0.7	Ruderal/landscaped/grassland	Annual grassland with scattered coyotebush; landscaped Monterey pine in median between driveway and agriculture road; minimal understory.	To the east, habitat is fragmented by presence of residences and agriculture; upland habitats to the south are relatively contiguous between work area and Merk Pond approximately 0.5 mile to southwest.	No upland habitat present; work area provides dispersal habitat.	No
C-43	Pole Work Area	0.5	0.7	Ruderal/grassland	Grassland with scattered coyote bush.	Land to the east is fragmented by residences and extensive agriculture; upland habitats to the south are relatively contiguous between work area and Merk Pond approximately 0.5 mile southwest.	No upland habitat present; portion of work area is previously disturbed but mostly supports grass and coyote bush; provides dispersal habitat.	No
Pull Site between C-43 & C-44	Tension Pull Site	0.5	0.6	Ruderal/grassland	Ruderal/grassland/coyote bush scrub adjacent to manicured *Eucalyptus* grove; portion of the site within an active goat corral.	Land to the east is fragmented by residences and extensive agriculture; upland habitats to the south are relatively contiguous between work area and Merk Pond approximately 0.5 mile southwest of the site.	No upland habitat present; work area is highly disturbed with some grass and brush present. The site provides dispersal habitat	No
C-44/E-48	Pole Work Area	0.5	0.6	Ruderal/grassland	Disturbed grassland within corral currently used to raise goats.	Land to the east is fragmented by residences and extensive agriculture; upland habitats to the south are relatively contiguous between work area and Merk Pond approximately 0.5 mile southwest.	No upland habitat present; work area is highly disturbed within a pasture used to raise goats; no vegetative canopy or understory is present. The site provides dispersal habitat.	No
C-45/E-49	Pole Work Area	0.6	0.6	Coastal scrub	Coastal scrub dominated by dense poison oak, coffeeberry, and coyote bush with scattered small live oaks.	A suitable dispersal corridor connects work area to Merk Pond approximately 0.6 mile southwest of the site.	Site contains suitable upland habitat with connectivity to relatively undisturbed lands extending southwest to Merk Pond.	Yes
C-46	Pole Work Area	0.7	0.5	Coastal scrub	Coastal scrub dominated by dense poison oak, coffeeberry, cotoneaster, coyote bush with scattered oaks and *Eucalyptus* saplings.	A suitable dispersal corridor connects work area to Merk Pond approximately 0.7 mile southwest	Site provides suitable upland habitat with connectivity to Merk Pond.	Yes
E-50	Pole Work Area	0.7	0.5	Coastal scrub	Coastal scrub dominated by dense poison oak and coyote bush; oak canopy nearby.	Suitable dispersal corridor connects work area to Merk Pond approximately 0.7 mile southwest	Site provides suitable upland habitat with connectivity to Merk Pond.	Yes
C-47/E-51	Pole Work Area	0.8	0.4	Oak woodland/pine/ *Eucalyptus* woodland/coastal scrub	Oak woodland with pine/*Eucalyptus* woodland with relatively dense understory of toyon, coyote bush, cotoneaster, and poison oak.	Suitable dispersal corridor connects work area to Merk Pond approximately 0.8 mile southwest of the site.	Site provides suitable upland habitat with connectivity to breeding habitat via relatively undisturbed lands to the south.	Yes

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-48/E-52	Pole Work Area	0.9	0.4	Landscaped ornamental plants/ruderal grassland	Landscaped residence backyard.	Suitable dispersal corridor connects work area to Merk Pond approximately 0.8 mile southwest of the site.	No upland habitat is present; work area is highly disturbed with no native canopy or understory. Provides marginal SCLTS dispersal habitat due to adjacent nearby oak woodland and connectivity to the west and south.	No
C-49/E-53	Pole Work Area	0.9	0.3	Oak woodland	Oak woodland with madrone and understory of poison oak, California blackberry, monkey flower; grassy patches.	Surrounding native habitats contain intact oak woodland, coastal scrub, and grassland with connectivity in all directions to relatively undisturbed habitat.	Site provides suitable upland habitat as well as extensive connectivity with relatively undisturbed habitat and known/potential breeding ponds.	Yes
C-50/E-54	Pole Work Area	1.2	0.3	Annual grassland/coastal scrub	Scattered oaks with open understory of cotoneaster, grasses.	Surrounding habitats contain intact oak woodland, coastal scrub, grassland, and *Eucalyptus* forest. Site has connectivity in all directions to relatively undisturbed habitat.	Site provides upland habitat but lacks a native understory; extensive connectivity with relatively undisturbed lands to southwest.	Yes
C-51/E-55	Pole Work Area	1.2	0.3	Annual grassland/coastal scrub/oak woodland	Oak woodland with relatively open understory of toyon, coyote bush, cotoneaster, and bracken fern; patches of grassland present.	Surrounding native habitats comprised of intact oak woodland, coastal scrub, grassland, and *Eucalyptus* forest provide connectivity to surrounding areas and suitable breeding habitat.	Site provides suitable upland habitat; extensive connectivity with relatively undisturbed lands to south, southwest and east.	Yes
Hames Hollow Guard Structure	Guard Structure	1.3	0.4	Agriculture	Disked field; recently planted tomatoes.	Surrounding native habitats heavily fragmented by residences; limited connectivity to suitable breeding habitats.	No upland habitat is present; work area is disturbed with no canopy or understory. Site provides marginal dispersal habitat.	No
C-52/E-56	Pole Work Area	1.3	0.5	Ruderal/developed	Landscaped residence backyard; no understory present.	Surrounding native habitats heavily fragmented by presence of numerous residences that limit connectivity to suitable breeding habitats.	No upland habitat is present the site provides marginal and limited SCLTS dispersal habitat.	No
C-53/E-57	Pole Work Area	1.2	0.6	Oak woodland	Oak woodland with madrone and understory of poison oak, California blackberry, French broom; much of understory recently cleared.	Surrounding native habitats heavily fragmented by presence of numerous residences that limit connectivity to suitable breeding habitats.	Marginal and limited upland habitat and suitable dispersal habitat.	Yes
Pleasant Valley Road Guard Structure	Guard Structure	1.2	0.6	Ruderal (roadside)	Ruderal roadside with adjacent oak woodland to the east and ruderal roadside vegetation to the west.	Surrounding habitats are fragmented by agriculture and residences; limited connectivity to suitable breeding habitat.	No upland habitat due to the lack of understory vegetation, previous disturbance, and limited connectivity to breeding sites. Site provides marginal dispersal habitat.	No
Hames Road Guard Structure	Guard Structure	1.2	0.6	Ruderal (roadside)	Disked orchard on north side; landscaped backyard of residence on south side.	Surrounding habitats are fragmented by agriculture and residences; limited connectivity to suitable breeding habitat.	No upland habitat due to the lack of understory vegetation. Previous disturbance and limited connectivity to breeding sites. Site provides marginal dispersal habitat.	No
Hames Road Staging Area	Staging Area	0.9	0.5	Agriculture	Disked field in apple orchard; limited understory of sparse grasses present.	Surrounding habitats are fragmented by agriculture and residences; limited connectivity to suitable breeding habitat.	No upland habitat; site provides marginal dispersal habitat,	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
Hames Road Landing Zone	Landing Zone	1.2	0.6	Grassland/agriculture	Chicken farm with grassland and scattered coyote bush.	Surrounding habitats are fragmented by agriculture and residences; limited connectivity to suitable breeding habitat.	No upland habitat due to the lack of canopy and understory cover. Grassland provides suitable SCLTS dispersal habitat.	No
C-54/E-58	Pole Work Area	1.1	0.6	Agriculture	Disked field in apple orchard; limited understory of sparse grasses present.	Surrounding native habitats are fragmented by agriculture and residences; limited connectivity to suitable breeding habitat exists.	No upland habitat is present, since the work area is regularly disked and there is no canopy or understory. Site provides disturbed dispersal habitat.	No
Pull Site between C-54 & C-55	Tension Pull Site	1.0	0.5	Agriculture/oak woodland	Much of site in disked apple orchard; portion contains oak woodland with scattered pines and understory of toyon, cotoneaster, pampas, and poison oak.	Surrounding native habitats are largely fragmented by agriculture and residences. Site has some connectivity to suitable oak woodland habitat to the south and west.	A small portion of the site that supports oak woodland provides upland habitat, despite a relatively open understory with some nonnative under-story species; the remainder of the site in the orchard does not provide upland but does provide disturbed dispersal habitat.	Yes
C-55/E-59	Pole Work Area	1.1	0.5	Grassland/coastal scrub/oak woodland	Oak woodland with scattered pines and relatively open understory of toyon, poison oak, cotoneaster, and pampas.	Surrounding native habitats are fragmented by agriculture and residences. Site has some connectivity with suitable upland habitat to the south and west.	Site provides upland habitat on a relatively undisturbed low hill; work area is surrounded by orchards and fields.	Yes
C-56/E-60	Pole Work Area	1.0	0.6	Agriculture/grassland	Disked field with scattered mature orchard trees.	Surrounding native habitats are fragmented by agriculture and residences. Site has connectivity to suitable oak woodland habitat to the south and west.	No upland habitat is present; work area is highly disturbed and there is no canopy or understory. Site provides disturbed dispersal habitat.	No
C-57/E-61	Pole Work Area	0.9	0.6	Oak woodland	Oak woodland with understory of ceanothus, coffeeberry, and monkey flower.	Surrounding native habitats include intact oak woodland and *Eucalyptus* forest. Site has connectivity to oak woodland and *Eucalyptus* habitats to the south and southeast.	Site provides upland habitat due to the presence of undisturbed oak woodland with intact understory vegetation.	Yes
C-58/E-62	Pole Work Area	0.9	0.6	Coastal scrub	Coastal scrub on ridgeline with ceanothus, coyotebush, poison oak, monkey flower, pampas, and broom.	Connectivity exists with surrounding oak woodland and coastal scrub habitats. Larger tracts of contiguous habitat are present to the southeast and south.	Site provides upland habitat due to the presence of suitable coastal scrub and adjacent oak woodlands.	Yes
C-59/E-63	Pole Work Area	0.9	0.7	Oak woodland/grassland	Oak woodland with understory of poison oak, California blackberry, and bracken fern; patches of grassland present.	Surrounding native habitats are fragmented by scattered residences surrounding the site. Some connectivity exists with uplands to the east and south.	Site provides upland habitat due to the presence of suitable vegetation and some habitat connectivity.	Yes
Quail Run Guard Structure	Guard Structure	0.9	0.8	Ruderal (roadside)/grassland	Ruderal habitat on compacted, graded area; no canopy is present.	Surrounding native habitats are heavily fragmented by residences; surrounding residential development limits connectivity to surrounding areas.	No upland habitat is present due to a lack of suitable vegetation and compacted substrate at the site. Site is highly disturbed and in a residential area. Site provides disturbed dispersal habitat.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-60	Pole Work Area	0.9	0.8	Ruderal/developed	Ruderal habitat on compacted driveway with temporary car port; scattered manicured oaks.	Surrounding native habitats are heavily fragmented by residences. Residential development limits connectivity to surrounding areas.	No upland habitat is present due to a lack of suitable vegetation and compacted substrate at the site; Site is within a parking area between residences; provides disturbed dispersal habitat.	No
E-64	Pole Work Area	0.9	0.8	Ruderal/developed	Backyard garden under manicured oaks; weedy understory with scattered landscaped ornamental plants.	Surrounding native habitats are heavily fragmented by residences. Residential development limits connectivity to surrounding areas.	No upland habitat is present due to a lack of suitable vegetation and compacted substrate at the site; provides disturbed dispersal habitat.	No
C-61/E-65	Pole Work Area	0.9	0.9	Grassland	Grassy lot with a landscaped tree. No understory vegetation other than grasses.	Surrounding native habitats are heavily fragmented by residences. Residential development limits connectivity to surrounding areas.	No upland habitat is present because the site consists of grassland in a residential area with no canopy; site provides dispersal habitat.	No
C-62/E-66	Pole Work Area	1.0	0.9	Ruderal/developed/grassland	Landscaped backyard with olive tree, oleander, and bottlebush; mowed grassland.	Surrounding native habitats are heavily fragmented by residences. Residential development limits connectivity to surrounding areas.	No upland habitat is present because the site lacks appropriate vegetation and cover. Grassland portion of site provides dispersal habitat.	No
C-63/E-67	Pole Work Area	1.0	1.0	Ornamental trees/grassland	Landscaped redwood/Douglas fir canopy with grassland understory that is periodically mowed.	Surrounding native habitats are fragmented by scattered residences. Limited connectivity exists with habitats to the south.	No suitable upland habitat is present due to the lack of suitable understory. Site provides suitable dispersal habitat.	No
C-64/E-68	Pole Work Area	1.1	1.2	Oak woodland	Oak woodland with intact understory of California blackberry and poison oak; grassy patch also present.	Surrounding native habitats are fragmented by scattered residences. Surrounding residential development limits connectivity to surrounding areas.	Site contains suitable upland vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
C-65/E-69	Pole Work Area	1.1	1.2	Ruderal/nonnative trees (pine)	Introduced lodgepole pine/scattered madrone canopy with grassy understory that is periodically mowed.	Surrounding native habitats are fragmented by scattered residences. Adjacent residential development limits connectivity to surrounding areas.	No upland habitat is present due to a lack of suitable vegetation. Site contains suitable dispersal vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
C-66/E-70	Pole Work Area	1.2	1.2	Coastal scrub	Coastal scrub on ridge with chamise, black sage, and monkey flower; no tree canopy present.	Surrounding native habitats are fragmented by scattered residences. Residential development limits connectivity to surrounding areas.	Site contains suitable upland vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-67/E-71	Pole Work Area	1.2	1.2	Oak woodland/coastal scrub	Approximately 50 percent grassland and 50 percent oak woodland with an understory of coffeeberry, poison oak, and California blackberry.	Surrounding native habitats are fragmented; located adjacent to residences and active agriculture with greenhouses. Connectivity of the area to suitable breeding habitat is limited by development.	Site contains suitable SCLTS upland vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
Cox Road Pull Site	Tension Pull Site	1.2	1.3	Ruderal/developed	Active agricultural field along driveway. No native habitat types or understory vegetation is present.	Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site contains suitable dispersal vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
C-68/E-71A	Pole Work Area	1.3	1.3	Oak woodland	Scattered oaks with grassy understory that is periodically mowed; some woody debris and landscaped plants present.	Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	Site contains suitable upland vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
E-72	Pole Work Area	1.3	1.2	Oak woodland/coastal scrub	Disturbed/sparse coastal scrub on ridge; oak woodland adjacent to site; understory of pampas, monkey flower, and bracken fern.	Surrounding native habitats fragmented, along shared driveway/lane off of Cox Road; site has connectivity to oak woodland and redwood forest to the west.	Site contains suitable upland vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
C-69/E-74	Pole Work Area	1.2	1.2	Ruderal (roadside)	Ruderal, bare dirt along roadside.	Surrounding native habitats are fragmented; some connectivity to oak woodlands southwest of the project alignment.	No upland habitat is present due to a lack of suitable vegetation. Site contains suitable dispersal vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-70/E-76	Pole Work Area	1.1	1.1	Ruderal (roadside)	Redwood/Douglas fir canopy with mixed understory of landscaping, California blackberry, wild cucumber.	Surrounding native habitats are fragmented due to residential development; some connectivity to oak woodlands southwest of the project.	No upland habitat is present due to a lack of suitable vegetation. Site contains suitable dispersal vegetation, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
C-71/E-77	Pole Work Area	1.1	1.1	Ruderal (roadside)	Conifer canopy in front of residence; ruderal and grassy understory, along roadside ditch.	Surrounding native habitats are fragmented due to residential development; some connectivity to oak woodlands southwest of the site exists.	Site provides suitable dispersal vegetation but is outside known SCLTS range; site is greater than 1 mile from the nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
C-72s	Pole Work Area	1.1	1.1	Ruderal (roadside)	No canopy; ruderal, grassland along roadside ditch.	Surrounding native habitats are fragmented; Connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides suitable dispersal vegetation but is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond. Due to the presence of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
C-72/E-78	Pole Work Area	1.1	1.1	Oak woodland/ruderal (roadside)	Oak woodland with intact understory of California blackberry, poison oak, bracken fern and grassy/ruderal roadside.	Surrounding native habitats are fragmented; Connectivity of the area to suitable breeding habitat is limited by development.	Site provides suitable upland vegetation but is outside known SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the site outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.	No
C-73/E-80	Pole Work Area	1.0	1.0	Ruderal (roadside)	No canopy; ruderal, landscaped roadside.	Site is located along a roadside; surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
CD-81/E-81	Pole Work Area	1.0	1.0	Ruderal (roadside)	No canopy; grassy/ruderal roadside.	Site is located along a roadside; surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-74/E-82	Pole Work Area	0.9	1.0	Ruderal (roadside)	Grassy/ruderal roadside.	Site is located along a roadside; surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-75	Pole Work Area	0.9	0.9	Oak woodland	Oak woodland/mixed hardwoods with intact understory of coffeeberry, poison oak, California blackberry, bracken fern.	Land to the north is fragmented by residential development; habitats to the south are relatively undisturbed, providing connectivity to Tucker Pond 0.9 mile southeast of the site.	Site provides upland habitat; site is located at the base of a mesic, north-facing slope with extensive appropriate habitat to south.	Yes
C-76/E-85	Pole Work Area	0.9	0.9	Ruderal (roadside)	Landscaped roadside near residence.	Site is located along a roadside; land to north fragmented by residential development; habitats to south relatively undisturbed, providing connectivity to Tucker Pond 0.9 mile southeast of the site.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-77	Pole Work Area	0.9	0.9	Ruderal (roadside)	No understory; 2 mature oaks near edge of site.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
CD-86/E-86	Pole Work Area	0.9	0.9	Ruderal (roadside)/oak woodland	Oak and black locust canopy with ruderal/grassy understory.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	Oak woodland within portion of work area provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes
CD-87/E-87	Pole Work Area	0.9	0.9	Ruderal (roadside)	Black locust canopy with ruderal/grassy understory.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-78/E-78	Pole Work Area	0.9	0.9	Ruderal (roadside)/oak woodland	Ruderal grassland along roadside with oak woodland within 15-feet with dense poison oak and California blackberry understory.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	Oak woodland within portion of work area provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes,
CD-89/E-89	Pole Work Area	0.9	0.8	Ruderal (roadside)/willow riparian	Willow riparian with grassy understory and landscaped hedge.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	Willow riparian within portion of work area provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes
C-79	Pole Work Area	0.9	0.8	Ruderal (roadside)	Landscaped ornamental tree with no understory, some iceplant.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
CS-90	Pole Work Area	0.9	0.8	Ruderal (roadside)	Grassy/ruderal roadside.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
CD-90/E-90	Pole Work Area	0.9	0.8	Ruderal (roadside)	Ice plant.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
CD-91/E-91	Pole Work Area	0.9	0.8	Ruderal (roadside)	Landscaped plants, bare dirt, ruderal roadside.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
CD-92/E-92	Pole Work Area	0.8	0.8	Ruderal (roadside)/oak woodland	Dense understory of poison oak.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	Oak trees are present in the western part of the work area, with a dense understory that provides upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes
C-80	Pole Work Area	0.8	0.8	Ruderal (roadside)/oak woodland	Grassy/ruderal roadside with scattered mature oaks.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	Oak trees are present in the western part of the work area, which provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes
E92A	Pole Work Area	0.8	0.8	Ruderal (roadside)	Grassy/ruderal roadside.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-81/E-94	Pole Work Area	0.8	0.7	Ruderal (roadside)	Grassy/ruderal roadside.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-81s	Pole Work Area	0.7	0.6	Ruderal (roadside)/oak woodland	Oak woodland with moderately dense understory of poison oak, mugwort, and *Vinca*.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	Work area with live oaks and a suitable understory that provides upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes
C-82/E-96	Pole Work Area	0.7	0.6	Ruderal (roadside)	Work area is largely denuded of vegetation.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
CD-97	Pole Work Area	0.6	0.6	Ruderal (roadside)	Landscaping.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-83/E-98	Pole Work Area	0.6	0.5	Ruderal (roadside)	Work area is ruderal grassland.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
CD-99	Pole Work Area	0.6	0.5	Ruderal (roadside)	Area cleared of vegetation.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
CD-100	Pole Work Area	0.5	0.5	Ruderal (roadside)/oak woodland	Existing pole at edge of road-site drainage course; oak woodland canopy with spare understory, dominated by *Vinca*.	Site is located along a roadside. Surrounding native habitats are fragmented; connectivity of the area to suitable breeding habitat is limited by development.	Work area under canopy of live oaks which provides suitable upland habitat.	Yes
C-84	Pole Work Area	0.5	0.5	Ruderal/grassland	Area cleared of vegetation.	Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides dispersal habitat.	No
CD-101	Pole Work Area	0.5	0.5	Ruderal (roadside)/oak woodland/willow riparian	Area surrounding existing pole highly disturbed.; northern portion of work area with an understory of California blackberry, wild cucumber.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	Northern edge of work area supports oaks and willows with an appropriate understory and provides suitable upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes
C-85/E-101	Pole Work Area	0.5	0.5	Ruderal (roadside)	Work area is largely denuded of native vegetation; portion of work area with landscaping.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
E-103	Pole Work Area	0.4	0.5	Ruderal (roadside)	Work area is largely denuded of vegetation.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-86	Pole Work Area	0.4	0.5	Ruderal (roadside)	Work area is ruderal grassland.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-87	Pole Work Area	0.4	0.5	Ruderal (roadside)	Work area is ruderal grassland.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides dispersal habitat.	No
CD-105	Pole Work Area	0.4	0.5	Ruderal (roadside)	Work area is ruderal grassland.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-88/E-106	Pole Work Area	0.3	0.5	Ruderal (roadside)	Work area is ruderal grassland.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-89/E-108	Pole Work Area	0.3	0.5	Ruderal (roadside)	Work area is ruderal grassland.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-90/E-109	Pole Work Area	0.3	0.4	Ruderal (roadside)	Work area is largely denuded of native vegetation; portion of work area with landscaping.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
C-91/E-111	Pole Work Area	0.2	0.4	Ruderal (roadside)	Work area is largely denuded of vegetation; no canopy or understory.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	No upland habitat is present due to a lack of suitable vegetation. Site provides disturbed dispersal habitat.	No
CD-112	Pole Work Area	0.2	0.4	Ruderal (roadside)/oak woodland	Area surrounding pole is denuded of vegetation. Edge of work area under canopy of oak trees with a moderately dense understory with poison oak.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Tucker Pond and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	Western edge of work area supports oak woodland, which provides suitable upland habitat. Remainder of site provides dispersal habitat.	Yes
C-92s	Pole Work Area	0.2	0.4	Oak woodland	Moderately dense understory with periwinkle, wild rose, California blackberry.	Surrounding native habitats fragmented, but upland habitats mostly contiguous between site and known SCLTS breeding pond.	Site is under canopy of large oak tree. Shaded conditions and understory provide suitable upland habitat	Yes
C-92/E-113	Pole Work Area	0.2	0.4	Ruderal (roadside)/oak woodland	Most of site is denuded of vegetation. Western edge of work area has an understory of California blackberry.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	Western part of work area supports oak woodland, which provides upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes
C-93s	Pole Work Area	0.2	0.3	Oak woodland/willow riparian	Dense understory of California blackberry, wild cucumber.	Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Palmer Pond.	Site is along a roadside ditch, which supports oaks and willows with a dense understory. Site provides suitable upland habitat.	Yes
C-93/E-115	Pole Work Area	0.2	0.3	Ruderal (roadside)/oak woodland	Most of site is denuded o vegetation. Western edge of work area has an understory of California blackberry.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	Western part of work area supports oak woodland, which provides upland habitat. Remainder of site provides disturbed dispersal habitat.	Yes
C-94s	Pole Work Area	0.3	0.3	Ruderal (roadside)/willow riparian	Willows and *Acacia* with sparse understory—blackberry, thistle.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Palmer Pond.	Site is along a roadside ditch, which supports oaks and willows with a dense understory. Site provides suitable upland habitat.	Yes

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)
C-94	Pole Work Area	0.3	0.3	Grassland/oak woodland	Oak woodland with dense understory—poison oak blackberry, hazel, grasses.	Site is located along a roadside. Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	Northern portion of site supports oak woodland with a dense understory and a complete canopy, which provides suitable upland habitat. Remainder of site contains disturbed dispersal habitat.	Yes
C-95/E-120	Pole Work Area	0.3	0.2	Grassland/ Monterey pine/*Acacia*/oak woodland	Mixed woodland with moderately dense understory—grasses, coffeeberry, blackberry.	Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	Eastern portion of site supports a mixed woodland with moderately dense understory and a complete canopy, which provides SCLTS upland habitat; Western portion of site is grassland that provides suitable dispersal habitat only.	Yes
C-75A/C-96	Pole Work Area	0.3	0.2	Oak woodland	Mostly sparse, but moderately dense in areas—Poison oak, toyon.	Surrounding native habitats fragmented; Connectivity of the area to suitable breeding habitat is limited by development. Freedom Boulevard presents partial barrier to movements.	Site supports oak woodland with areas of moderately dense understory and a complete canopy. Site provides suitable upland habitat.	Yes
C-76A	Pole Work Area	0.3	0.3	Coastal scrub/oak woodland	Oak woodland with sparse understory—toyon, pampas grass.	Surrounding native habitats fragmented. Connectivity of the area to suitable breeding habitat is limited by development. Freedom Boulevard presents partial barrier to movements.	Site supports oak woodland with areas of moderately dense understory. Site provides suitable upland habitat.	Yes
C-76C	Pole Work Area	0.4	0.3	Coastal scrub/oak woodland	Oak woodland with moderately dense understory—ferns.	Surrounding native habitats fragmented. Connectivity of the area to suitable breeding habitat is limited by development. Freedom Boulevard presents partial barrier to movements.	Oak woodland with moderately dense understory, which provides suitable upland habitat; remainder of site provides dispersal habitat only	Yes
GV(RR)-PS C-77	Pole Work Area	0.5	0.5	Oak woodland	Oak woodland with dense understory of California blackberry, honeysuckle, toyon; dense pampas grass in open areas.	Situated in valley with mostly intact oak woodland. Connectivity of the area to suitable breeding habitat is limited by development. Freedom Boulevard presents a partial barrier to movements.	Site is in oak woodland with a relatively dense understory, which provides suitable upland habitat.	Yes
GV(RR)-PS C-78	Pole Work Area	0.6	0.4	Oak woodland	Oak woodland with sparse understory of periwinkle, English ivy, poison oak.	Surrounding native habitats fragmented. Connectivity of the area to suitable breeding habitat is limited by development. Freedom Boulevard presents partial barrier to movements.	Site is in an isolated patch of oaks, that provides upland habitat, between houses	Yes
GV-PS (RR) C-75	Pole Work Area	0.3	0.2	Ruderal/oak woodland	Most of site is ruderal and grassland habitats. Edges of work area support oak woodland with moderately dense understory of poison oak, blackberry.	Surrounding native habitats fragmented, but wooded habitats mostly contiguous between site and known SCLTS breeding pond.	Northern part of work area supports dense vegetation that provides suitable upland habitat. Remainder of site provides dispersal habitat.	Yes
Rob Roy Substation	Cut and Fill Area	0.3	0.3	Ruderal/coastal scrub/oak woodland/non-native pines	Oak woodland and nonnative pine canopy with sparse understory of manzanita, pampas grass.	Surrounding native habitats fragmented, but upland habitats relatively contiguous between site and Palmer Pond. Freedom Boulevard presents partial barrier to movements.	Eastern part of work area supports oaks with a sparse understory; considered suitable upland habitat.	Yes

Appendix C1
Work Area Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Site Boundaries*	Fence Work Area during Construction (Yes/No)

Notes:

*—Description of upland and dispersal habitats

SCLTS upland habitat = Woodland and scrub habitats in which SCLTS can be found year-round; this habitat provides underground refugia during the dry season (typically 15 April–15 October); SCLTS could take refuge in such locations. Upland habitat is also considered to be dispersal habitat.

SCLTS dispersal habitat = Open native habitats such as grassland and oak savannah supporting aboveground during juvenile dispersal or adult breeding migration in the wet season (typically 15 October–15 April). These areas would not be utilized as refuge sites during the dry season.

SCLTS disturbed dispersal habitat = Converted lands including roads, disked fields, landscaped yards and other areas cleared of vegetation that do not provide suitable breeding or upland habitat. SCLTS can be encountered aboveground during juvenile dispersal or adult breeding migration in the wet season (typically 15 October–15 April).

Appendix C2 Overland Access Route Habitat Suitability							
PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Area*
C-06	Cross-Country Access	3.0	3.0	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-07	Cross-Country Access	3.0	3.0	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-08	Cross-Country Access	3.0	3.0	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-18	Cross-Country Access	2.4	2.4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-21	Cross-Country Access	2.1	2.1	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-24	Cross-Country Access	1.8	1.8	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-26	Cross-Country Access	1.7	1.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
E-29	Cross-Country Access	1.6	1.6	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-28	Cross-Country Access	1.6	1.6	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
E-32	Cross-Country Access	1.4	1.4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-30	Cross-Country Access	1.4	1.4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-31	Cross-Country Access	1.3	1.3	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-32	Cross-Country Access	1.2	1.9	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-33	Cross-Country Access	1.2	1.8	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.

Appendix C2
Overland Access Route Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Area*
C-34	Cross-Country Access	1.1	1.7	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-37	Cross-Country Access	1.0	1.4	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Not assessed as it is outside known SCLTS range	Site is outside known SCLTS range; greater than 1 mile from nearest known or potential breeding pond.
C-39	Cross-Country Access	0.8	1.2	Grassland	No tree or scrub canopy; grassland, periodically disked.	No connectivity to suitable breeding habitat; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	Access route provides potential SCLTS dispersal vegetation, but SCLTS is not expected to migrate across Corralitos Valley to this area due to the dispersal barrier created by intensive agriculture.
E-43	Cross-Country Access	0.7	1.1	Agriculture	No canopy; disked field/commercial flower field.	No connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	Access route provides potential disturbed dispersal vegetation, but SCLTS is not expected to migrate across Corralitos Valley to this area due to the dispersal barrier created by intensive agriculture.
C-40	Cross-Country Access	0.7	1.1	Agriculture	No canopy; disked field/commercial flower field.	No connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	Access route provides potential disturbed dispersal vegetation, but SCLTS is not expected to migrate across Corralitos Valley to this area due to the dispersal barrier created by intensive agriculture.
C-41	Cross-Country Access	0.7	1.1	Active orchard	Commercial apple orchard.	No connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	Access route provides potential disturbed dispersal vegetation, but SCLTS is not expected to migrate across Corralitos Valley to this area due to the dispersal barrier created by intensive agriculture.
C-42	Cross-Country Access	0.5	0.7	Agriculture	Active blackberry field.	No connectivity to suitable breeding habitat; surrounding native habitats converted to agricultural and residential uses; isolated from nearest known breeding pond (Merk Pond) by extensive area of active agriculture.	Access route provides potential disturbed dispersal vegetation, but SCLTS is not expected to migrate across Corralitos Valley to this area due to the dispersal barrier created by intensive agriculture.
C-45	Cross-Country Access	0.6	0.6	Coastal scrub	Coastal scrub dominated by dense poison oak, coffee berry, coyote bush with scattered small oaks.	Suitable dispersal corridor connects work area to Merk Pond approximately 0.6 mile southwest of the site.	No upland habitat present; suitable dispersal habitat only; access route follows old track such that no scrub will be removed; some limbing of shrubs and trees may be necessary.
C-46	Cross-Country Access	0.5	0.7	Coastal scrub	Based on aerial photos, similar to Site C-45 and C-50.	Suitable dispersal corridor connects work area to Merk Pond approximately 0.6 mile southwest of the site.	Could not visit short access road between E-50 and C-46 due to dense poison oak. Aerials photographs indicate that the habitat is similar to that present at E-50 and C-46, which is provides suitable upland and dispersal habitats.
E-50	Cross-Country Access	0.7	0.5	Coastal scrub	Coastal scrub dominated by poison oak and coyote bush; oak canopy/*Eucalyptus* forest nearby.	Suitable dispersal corridor connects work area to Merk Pond approximately 0.7 mile southwest.	No upland habitat present; follows old track; site provides dispersal habitat.
E-51	Cross-Country Access	0.8	0.4	Grassland	Grassland and mixed ruderal species.	Suitable dispersal corridor connects work area to Merk Pond approximately 0.7 mile southwest.	No upland habitat present; follows old track; site provides dispersal habitat.

Appendix C2
Overland Access Route Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Area*
C-49	Cross-Country Access	0.9	0.3	Oak woodland/grassland	Mostly mowed grassland until it reaches C-49 with intact oak woodland.	Surrounding native habitats contains intact oak woodland, coastal scrub, grassland with connectivity in all directions to surrounding areas.	Access route provides dispersal habitat and small amount of upland habitat associated with oak woodlands near C-49
C-53	Cross-Country Access	1.2	0.6	Oak woodland/ruderal	Recently cleared land along oak woodland ecotone, grassy areas, but mostly bare dirt.	Surrounding native habitats fragmented by residences with limited connectivity to suitable breeding habitats.	No upland habitat present due to lack of suitable vegetation; access route provides suitable dispersal habitat.
C-54	Cross-Country Access	1.1	0.6	Agriculture/orchard	Disked fields with scattered mature orchard trees.	Surrounding native habitats are fragmented by agriculture and residences. Site has limited connectivity with suitable upland habitat to the south and west.	No upland habitat present due to lack of suitable vegetation; site provides disturbed SCLTS habitat.
C-55	Cross-Country Access	1.1	0.5	Grassland/coastal scrub	Grassland/coyote bush scrub with scattered cotoneaster, pampas.	Surrounding native habitats are fragmented by agriculture and residences. Site has limited connectivity with suitable upland habitat to the south and west.	No upland habitat present due to lack of suitable vegetation; site provides SCLTS dispersal habitat.
C-56	Cross-Country Access	1.0	0.6	Agriculture/grassland	Disked field with no canopy.	Surrounding native habitats are fragmented by agriculture and residences. Site has limited connectivity with suitable upland habitat to the south and west.	No upland habitat present due to lack of suitable vegetation; site provides disturbed dispersal habitat.
C-57	Cross-Country Access	0.9	0.6	Oak woodland/coastal scrub	Oak woodland/coastal scrub portions of which are heavily vegetated with coffeeberry, coyotebush, poison oak, monkey flower, pampas, broom.	Surrounding native habitats include intact oak woodland and *Eucalyptus* forest. Site has connectivity to oak woodland and *Eucalyptus* habitats to the south and southeast.	Access route provides upland habitat; route follows old road cut, portions of which are heavily vegetated and have reverted to native under-story..
C-58	Cross-Country Access	0.9	0.6	Oak woodland/*Eucalyptus* forest	Oak woodland/*Eucalyptus* forest portions of which are heavily vegetated with coffeeberry, coyotebush, poison oak, monkey flower, pampas, broom.	Surrounding native habitats include intact oak woodland and *Eucalyptus* forest. Site has connectivity to oak woodland and *Eucalyptus* habitats to the south and southeast.	Access route provides upland habitat; route follows old road cut, portions of which are heavily vegetated and have reverted to native under-story
C-61	Cross-Country Access	0.9	0.9	Grassland	Grassy lot, no canopy.	Surrounding native habitats are heavily fragmented by residences. Residential development limits connectivity to surrounding areas.	No upland habitat is present due to the lack of suitable vegetation. Grassland provides suitable dispersal habitat.
C-64	Cross-Country Access	1.1	1.2	Oak woodland	Oak woodland with grassy understory periodically mowed.	Surrounding native habitats are heavily fragmented by residences. Residential development limits connectivity to surrounding areas.	Access route contains suitable upland and dispersal habitats, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the route outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this area.

Appendix C2
Overland Access Route Habitat Suitability

PG&E Site #	Work Area Type	Distance (miles) to Nearest Known SCLTS Breeding Aquatic Feature	Distance (miles) to Nearest Suitable SCLTS Breeding Aquatic Feature	Habitat Type(s)	Canopy/Understory Description	Habitat Connectivity of Adjacent Areas to Breeding Habitat	Assessment of SCLTS Habitat within Project Area*
C-66	Cross-Country Access	1..2	1.2	Grassland/non-native pines	Grassland and patch of pines with open, grassy understory.	Surrounding native habitats are heavily fragmented by residences. Residential development limits connectivity to surrounding areas.	Access route contains suitable upland and dispersal habitat, but is outside the current reported SCLTS range; site is greater than 1 mile from nearest known or potential breeding pond. Due to the location of the route outside of the reported range of the species, as well as the distance to known breeding habitat, it is unlikely that SCLTS would utilize this site.
C-95	Cross-Country Access	0.3	0.2	Grassland	No canopy; grassy with Monterey spineflower.	Surrounding native habitats fragmented. Freedom Boulevard presents partial barrier to SCLTS movements	No upland habitat is present due to the lack of canopy and understory cover. Grassland provides suitable dispersal habitat.
C-76A	Cross-Country Access	0.3	0.3	Oak woodland/coastal scrub	Oak woodland/coastal scrub with sparse understory—scattered manzanita, grassy.	Surrounding native habitats fragmented; Connectivity of the area to suitable breeding habitat is limited by development. Freedom Boulevard presents partial barrier SCLTS to movements	No upland habitat is present due to the lack of suitable vegetation. Grassland provides suitable suitable dispersal habitat.
C-76C	Cross-Country Access	0.4	0.3	*Eucalyptus* forest/oak woodland/coastal scrub	*Eucalyptus*/oak canopy nearby; spare understory mostly grassy with some patches of scrub.	Surrounding native habitats fragmented; Connectivity of the area to suitable breeding habitat is limited by development. Freedom Boulevard presents partial barrier to SCLTS movements	No upland habitat is present due to the lack of suitable vegetation. Coastal scrub provides suitable dispersal habitat;
GV(RR)-PS C-77	Cross-Country Access (mapped by KB 5/22/13)	0.5	0.5	Ruderal (roadside)/oak woodland	Overgrown road cut dominated by pampas grass; passes through oak woodland.	Surrounding land mostly undisturbed oak woodland/coastal scrub. Freedom Road distant but still presents a partial barrier between the study site and SCLTS breeding habitat.	Route passes through patches of suitable upland and dispersal habitats (oak woodland). Remainder of route passes through suitable dispersal habitat.

Notes:

*—Description of upland and dispersal habitats

SCLTS upland habitat = Woodland and scrub habitats in which SCLTS can be found year round; this habitat provides underground refugia during the dry season (typically 15 April–15 October); SCLTS could take refuge in such locations. Upland habitat is also considered to be dispersal habitat.

SCLTS dispersal habitat = Open native habitats such as grassland and oak savannah supporting aboveground during juvenile dispersal or adult breeding migration in the wet season (typically 15 October–15 April). These areas would not be utilized as refuge sites during the dry season.

SCLTS disturbed dispersal habitat = Converted lands including roads, disked fields, landscaped yards and other areas cleared of vegetation that do not provide suitable breeding or upland habitat. SCLTS can be encountered aboveground during juvenile dispersal or adult breeding migration in the wet season (typically 15 October–15 April).

APPENDIX C:
RELEVANT COUNTY GENERAL PLAN POLICIES

RELEVANT SANTA CRUZ COUNTY GENERAL PLAN POLICIES

Public utility facilities regulated by the California Public Utilities Commission (CPUC) are, in general, not subject to local land use and zoning regulations. However, consistent with CPUC jurisdiction over public utility facilities, the following Santa Cruz County General Plan policies would be relevant to the proposed project, and Pacific Gas & Electric would consider them in the final design, construction, and operation of the proposed project.

OBJECTIVES AND POLICIES

Land Use Element

- ***Objective 2.21: Public Facility/Institutional Designation.*** To ensure adequate present and future availability of land for both public and quasi-public facility uses including schools and University facilities, fire stations, churches, hospitals, cemeteries, sanitary landfills, and water supply and treatment facilities.
  - ***Policy 2.21.4: Location of Public Utility Transmission Facilities.*** Public utility transmission and distribution facilities, including substations, shall be allowed in all land use districts, provided, however, that the routes or site plans of all proposed gas and electric transmission lines and substations shall be submitted to the Planning Department for review and recommendations prior to the acquisition of necessary land rights. No discretionary permit shall be required for a proposed land use which is subject to the jurisdiction of the California Public Utilities Commission or the California Energy Commission.

Conservation and Open Space Element

- ***Objective 5.10a: Protection of Visual Resources.*** To identify, protect, and restore the aesthetic values of visual resources.
- ***Objective 5.10b: New Development in Visual Resource Areas.*** To ensure that new development is appropriately designed and constructed to have minimal to no adverse impact upon identified visual resources.
  - ***Policy 5.10.3: Protection of Public Vistas.*** Protect significant public vistas as described in Policy 5.10.2 from all publicly used roads and vista points by minimizing disruption of landform and aesthetic character caused by grading operations, timber harvests, utility wires and poles, signs, inappropriate landscaping, and structure design. Provide necessary landscaping to screen development which is unavoidably sited within these vistas.
  - ***Policy 5.10.23: Transmission Lines and Facilities.*** Require transmission line rights-of-way and facilities to be reviewed in accordance with the Zoning

Ordinance to minimize impacts on significant public vistas; especially in scenic rural areas, and to avoid locations which are on or near sensitive habitat, recreational, or archaeological resources, wherever feasible.

- ***Policy 5.10.24: Utility Service Lines.*** Require underground placement of all new utility service lines and extension lines to and within new residential and commercial subdivisions. Require underground placement of all other new or supplementary transmission lines within views from scenic roads where it is technically feasible, unless it can be shown that other alternatives are less environmentally damaging or would have unavoidable adverse impacts on agricultural operations. When underground utilities are installed parallel to existing above ground lines, require that the design of the support towers or poles be compatible with the surroundings and that lines cross roadways at low elevations or curves in the roads in accordance with the California Public Utilities Commission regulations for public utility facilities.
- ***Policy 5.10.25: Access Roads for Transmission Lines***. Require access roads for transmission line construction and maintenance within scenic corridors to be designed and constructed to parallel the contour of the land and to minimize grading and landscape alterations.

Public Safety and Noise Element

- ***Objective 6.4: Flood Hazards.*** To protect new and existing structures from flood hazards in order to minimize economic damages and threats to public health and safety, and to prevent adverse impacts on floodplains, and maintain their beneficial function for flood water storage and transport and for biotic resource protection.
  - ***Policy 6.4.4: Locate Public Facilities Outside Flood Hazard Areas.*** Require new utilities, critical facilities, and non-essential public structures to be located outside the 100-year flood and coastal high hazards areas, unless such facilities are necessary to serve existing uses, there is no other feasible location, and construction of these structures will not increase hazards to life or property within or adjacent to the floodplain or coastal inundation areas.
- ***Objective 6.5: Fire Hazards.*** To protect the public from the hazards of fire through citizen awareness, mitigating the risks of fire, responsible fire protection planning, and built-in systems for fire detection and suppression.
  - ***Policy 6.5.8: Public Facilities within Critical Fire Hazard Areas.*** Discourage location of public facilities and critical utilities in Critical Fire Hazard Areas. When unavoidable, special precautions shall be taken to ensure the safety and uninterrupted operation of these facilities.
- ***Objective 6.8a: Electric and Magnetic Energy.*** To protect the public from potential health hazards associated with electric and magnetic fields based on the then current state of scientific knowledge through appropriate limitations on the use and development of land near electric transmission and distribution powerlines and substations which could create health hazards.

- ***Objective 6.8b: New Electrical Facilities.*** The planning, siting, and construction of future electrical facilities should minimize electric and magnetic fields near sensitive areas (for example schools, hospitals, playgrounds), residential uses, existing areas of high electric and magnetic exposure, and areas of future development.
  - ***Policy 6.8.1: Prudent Avoidance.*** In regard to exposure of electric and magnetic fields, the policy of the County of Santa Cruz is one of "prudent avoidance." Prudent avoidance assumes that exposure to electric and magnetic fields may present a health risk. The policies in this section shall apply to residential land divisions or other new discretionary development and other sensitive land uses, not including development of one single-family dwelling on an existing lot of records.
  - ***Policy 6.8.3: Development Mitigation Measures.*** Utilize the following techniques to minimize exposure to potentially hazardous electric and magnetic fields from electric powerlines.
    a. *Site Planning*—Locate and/or cluster habitable building envelopes away from the potentially hazardous electric and magnetic fields consistent with the current state of scientific knowledge.
    b. *Underground the Powerline*—Reduce the electric and magnetic fields by undergrounding powerlines in a metallic pipe or other appropriate insulator.
    c. *Reconfigure the Powerline*—Reconfigure powerlines and conductors in transmission or distribution lines to achieve significant cancellation of the electric and magnetic fields near the ground.
  - ***Policy 6.8.4: New Transmission and Distribution Facilities.*** The siting of new transmission and distribution powerlines and substations shall minimize electric and magnetic fields near existing sensitive areas, residential areas, existing areas of high electric and magnetic field exposure, and areas of future development. Public exposure to electric and magnetic fields shall not be increased where practical alternatives exist.

Parks, Recreation, and Public Facilities Element

- ***Objective 7.26: Electrical Distribution System.*** To improve the reliability and aesthetic quality of the electrical energy distribution system in order to promote public health and safety, environmental protection, and resource conservation in the operation of existing or new energy production or distribution systems.
  - ***Policy 7.26.1: Undergrounding Lines.*** Require all new power line distribution systems and all services to new development to be placed underground.
  - ***Policy 7.26.2: Protecting Scenic Quality.*** Discourage new high-voltage overhead transmission line corridors that impinge upon the scenic quality of the County and may pose a health hazard. Consider placing existing transmission lines underground.

- ***Policy 7.26.3: Recreational Use of Utility Rights-of-Way.*** Encourage the use of utility rights-of-way for bikeways and hiking paths where appropriately located and where shown to be not hazardous to users.
- ***Policy 7.26.5: Criteria for LCP Amendments for Energy Facilities.*** Establish the following criteria for amendments to the General Plan and LCP Land Use Plan for permitting the location of energy facilities in addition to stated LCP policies:
  - Adequate infrastructure and public services are available including, but not limited to, water, sewer, fire protection, road capacity, law enforcement, and medical services.
  - The use would provide full protection of sensitive habitat areas, commercial fishing, recreational, and agricultural uses.
  - The use would be visually compatible with and have minimum disruption of viewsheds.
  - Consistency with federal, state, and local air quality regulations.