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September 25, 2012

Via E-Mail

Tania.Treis@panoramaenv.com

Ms. Tania Treis, Principal
PANARAMA ENVIRONMENTAL CONSULTING, INC.
One Embarcadero Center, Suite 740
San Francisco, CA 94111

**Re: A.12-01-012 - Santa Cruz 115 Kilovolt Reinforcement Project
Response to California Public Utilities Commission Data Request #2**

Dear Ms. Treis:

Thank you for your August 13, 2012, inquiry regarding Pacific Gas and Electric Company's ("PG&E's") Application (A.12-01-012) for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project ("Project"). This letter is intended to respond to each of the data requests identified in your letter. The original text for each data request is included, followed by PG&E's response. We also include herein a completed Table 3.7.2-1, Annual GHG Emissions (Unmitigated) – Construction, per your separate request received by email dated August 3, 2012, as well as a consolidated Excel workbook file containing all of the manual calculations performed for the air quality and GHG analysis submitted as part of the Proponent's Environmental Analysis (also separately requested).

Data Request Question No. 1:

Corrected Geographic Information System ("GIS") data for the new project features and work areas: Several changes have been made to the project since PG&E filed their application in January 2012. Additional poles have been added or relocated, several new landing zones and storage yards have been added, new work areas and a new road have been added near the Rob Roy Substation, and a distribution reconductoring component has been added to the project. Panorama provided PG&E with several maps for review on July 30, 2012 that were based on the previously provided GIS data. We are requesting that PG&E review this data and provide us with a corrected GIS file that includes up-to-date project components and work areas.



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PG&E's Response to CPUC's Data Request No. 2
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The GIS data layer should also be corrected to show the "project study area," which includes all project features plus a 250 foot buffer around each feature, per our conversation on July 26, 2012.

PG&E's Response:

An updated GIS dataset displaying changes to proposed pole locations and project work areas was provided to the California Public Utilities Commission on July 12, 2012. Since that time, one project access road location was altered slightly. The current project GIS dataset—including the adjustments previously provided on July 12, 2012, and the most recent access road adjustment—is provided in Santa Cruz- GIS Shapefiles- 09-24-12.zip as an enclosure to this letter. Note that biological resource surveys conducted in support of the Biological Resources Technical Report prepared for the project included a 500-foot-wide corridor (250-foot buffer on either side of the centerline) along the project's Northern and Southern Alignments only. Project components that were added later, and surveys conducted later (such as the rare plant survey), have varying survey areas, as depicted in the GIS shapefiles.

Data Request Question No. 2:

GIS data for cultural resource survey areas: The cultural resources survey report includes figures 9a through 9f that show all of the project areas that have been surveyed for cultural resources. We would like to request a copy of that data, including any updates for the new project components and work areas that have been added to the project.

PG&E's Response:

GIS layers depicting the extent of all cultural resources surveys for the project are enclosed in Santa Cruz- GIS Shapefiles- 09-24-12.zip. These GIS layers include all areas that have been surveyed for cultural resources, including those areas for which landowner access had not previously been received, but that have now been conducted since PG&E's previous data submission.

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Data Request Question No. 3:

GIS data update for biological resource survey areas: The memorandum provided by PG&E on July 9, 2012 indicated that the new project areas resulting from the addition of new landing zones, pole relocations, and other changes were surveyed for biological resources. We would like to request a new GIS file showing all project areas surveyed for biological resources. The data should show that all proposed project work areas have been surveyed for biological resources.

PG&E's Response:

All project areas that have been surveyed for biological resources—including the adjustments previously provided on July 12, 2012, and the most recent access road adjustment—are enclosed in Santa Cruz- GIS Shapefiles- 09-24-12.zip. As noted in the previous data submissions, active agricultural lands were not surveyed for rare plants due to the nature of their use.

Data Request Question No. 4:

Pole Heights on graphic from the Proponent's Environmental Assessment ("PEA"): Please provide revisions to graphic 2-5 Typical Pole Drawings (from the PEA) to indicate pole heights, per our conversation on July 26, 2012.

PG&E's Response:

The revised Figure 2-5: Typical Pole Drawings (from the PEA), which indicates pole heights for both existing and proposed poles, is enclosed.

Data Request Question No. 5:

Revisions to the Santa Cruz Long-Toed Salamander ("SCLTS") Habitat Assessment: Please provide revisions to the SCLTS habitat assessment to reflect project changes including the new landing zones/staging areas/contractor yards, pole relocations, and distribution line reconductoring per our conversation on July 26, 2012.



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PG&E's Response:

The revised Santa Cruz Long-toed Salamander Habitat Assessment is enclosed. This document has been updated to include the adjustments previously provided on July 12, 2012 and the most recent access road adjustment.

We trust that the information provided herein is fully responsive to your requests. However, should you have any further questions, please do not hesitate to contact me at (415) 973-7475.

Very truly yours,

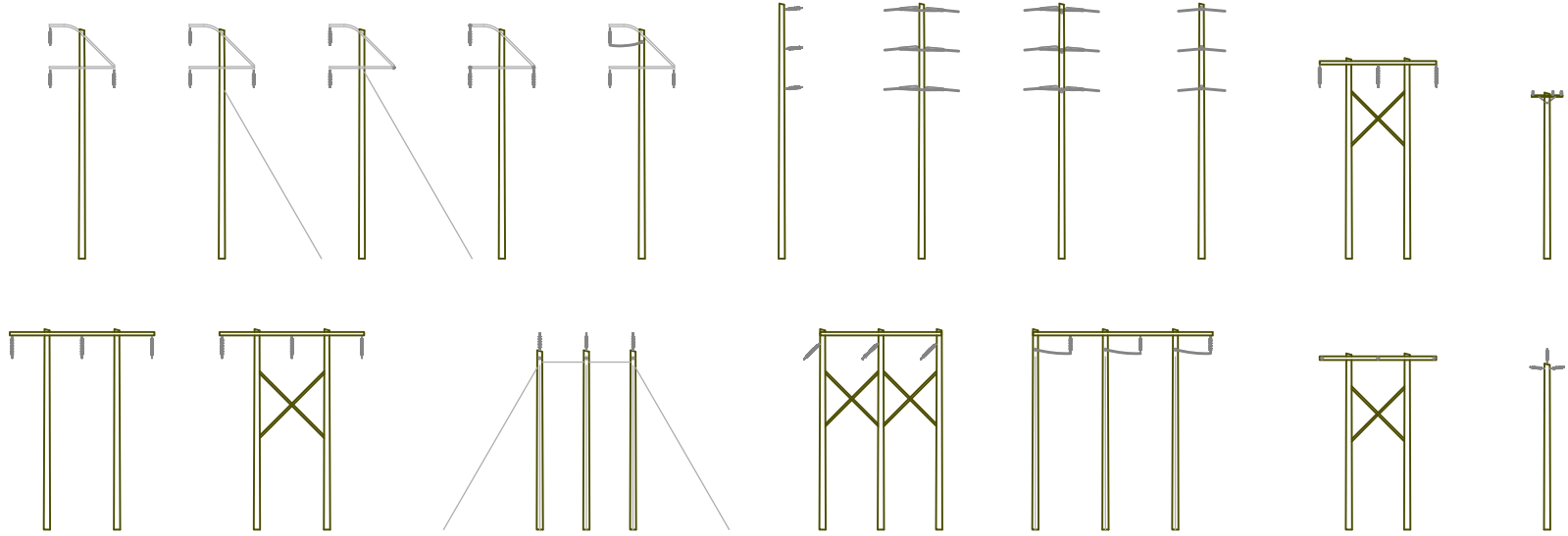
A handwritten signature in blue ink, appearing to read 'MAF', followed by a long horizontal line extending to the right.

Matthew A. Fogelson

MAF:bd
Enclosures (4)

cc: Ms. Lisa Orsaba, Energy Division - CPUC
Mr. Brandon Liddell, Sr. Land Planner - PG&E

EXISTING WOOD POLES - HEIGHT ABOVE GROUND 32.5' - 76.25'



PROPOSED POLES

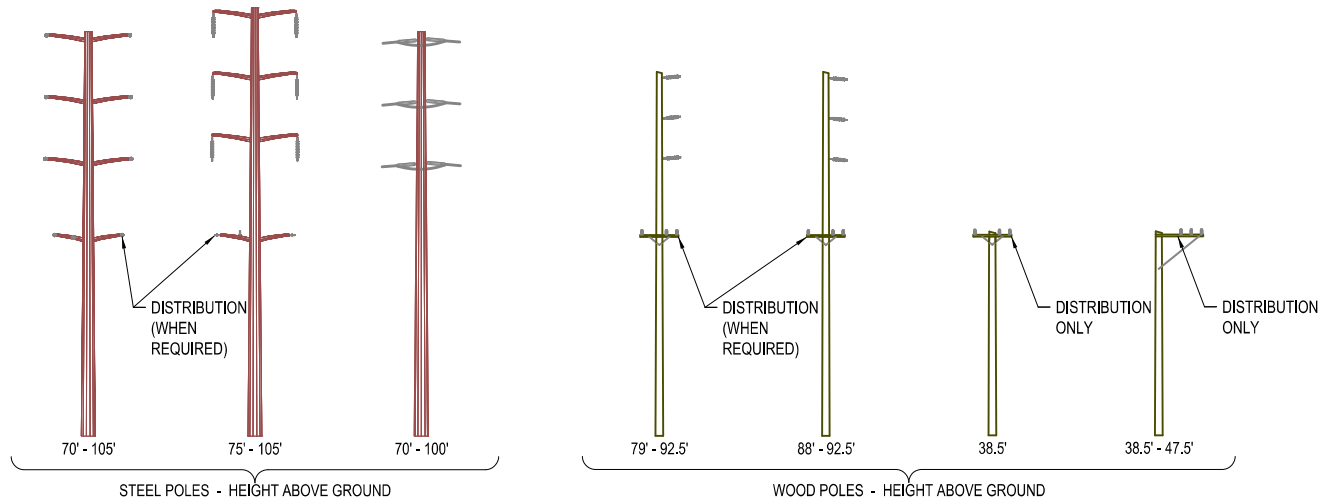


Figure 2-5: Typical Pole Drawings

**Santa Cruz Long-toed Salamander Habitat Assessment,
PG&E Santa Cruz 115 kV Reinforcement Project,
Santa Cruz County, CA**

Prepared for:

Insignia Environmental
258 High Street
Palo Alto, CA 94301
(650) 321-6787

Prepared by:

Biosearch Associates
PO Box 1220
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25 September 2012

**SANTA CRUZ LONG-TOED SALAMANDER HABITAT ASSESSMENT,
PG&E SANTA CRUZ 115 kV REINFORCEMENT PROJECT,
SANTA CRUZ COUNTY, CA**

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**SANTA CRUZ LONG-TOED SALAMANDER HABITAT ASSESSMENT,
PG&E SANTA CRUZ 115 kV REINFORCEMENT PROJECT,
SANTA CRUZ COUNTY, CA**

SUMMARY

Pacific Gas and Electric Company (PG&E) intends to upgrade a portion of its electrical system between Green Valley Substation near Watsonville and Rob Roy Substation in Aptos. The project will require surface disturbance in localized areas within the range of the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) (SCLTS), which is listed as endangered by the U.S. Fish and Wildlife Service and the California Department of Fish and Game, and designated as Fully Protected under the Fish and Game Code of California.

The project site is situated near the eastern and northern extent of the known range of the SCLTS. The project passes within 0.4 miles of Merk Pond and within 0.8 miles of Tucker Pond. Merk Road Pond is the easternmost known breeding site in Santa Cruz County, while Tucker Pond is the northernmost known breeding site. The portion of the Northern Alignment east of Corralitos Creek is considered to be outside the range of the subspecies. The remainder of the Northern Alignment and the Cox-Freedom Segment are within the range of the SCLTS, although the subspecies has not been observed north of Freedom Boulevard in the Pleasant Valley or Day Valley areas.

An assessment of potential SCLTS habitat was conducted that included a review of available data to determine migration and dispersal distance relative to known or potential breeding sites. The best available data indicate that great majority of SCLTS adult and post-metamorphic juvenile activity occurs within 0.6 mile of breeding ponds. Approximately 2.4 miles of the Northern Alignment and approximately 1.1 miles of the Cox-Freedom Segment are within 0.6 mile of a known or potential SCLTS breeding site.

Based on a visual inspection at each project workspace within 0.6 mile of a known or potential breeding pond, up to 21 locations may provide upland over-summering habitat for the SCLTS. Two known breeding ponds are within 0.6 mile: Merk Road Pond and Shadowmere Way Pond. Seven ponds were identified within 0.6 miles of the project that provide potential breeding habitat for SCLTS. None of these seven ponds has been surveyed for SCLTS, but they all are assumed to provide breeding habitat for SCLTS based on reconnaissance surveys and aerial images.

Appropriate pre-construction surveys are recommended at each workspace to determine if SCLTS are residing within a work area and/or passing through during migration or dispersal. Since visual pre-construction surveys are generally ineffective for this species, it is recommended that work areas with suitable SCLTS upland habitats be enclosed with drift-fencing, and pitfall trapping be conducted from October through March. Additional recommendations are also provided to reduce the risk of impacting the species during the project.

**SANTA CRUZ LONG-TOED SALAMANDER HABITAT ASSESSMENT,
PG&E SANTA CRUZ 115 kV REINFORCEMENT PROJECT,
SANTA CRUZ COUNTY, CA**

INTRODUCTION

Pacific Gas and Electric Company (PG&E) intends to upgrade a portion of its electrical system between Green Valley Substation near Watsonville and Rob Roy Substation in Aptos as part of a the Santa Cruz 115 kV Reinforcement Project (project). The electrical upgrade will help protect several communities in Santa Cruz County from an extended power outage by improving electrical reliability, operational flexibility and system capacity. There have been no significant electrical upgrades in Santa Cruz County since the 1970s, even though the human population has expanded within the service area from approximately 50,000 to approximately 90,000.

The project is within the range of the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) (SCLTS), a species listed as endangered under both federal and state Endangered Species Acts and designated as Fully Protected under the Fish and Game Code of California. At many locations along the transmission corridor, localized surface disturbance will be required within upland habitat that may be occupied by the SCLTS.

PG&E chose the Northern Alignment and Cox-Freedom Segment out of several alternatives as the route with the least risk of impacting the SCLTS. Biosearch Associates was contracted by Insignia Environmental (Palo Alto, CA) to assess habitat for the SCLTS and provide specific recommendations to minimize potential negative effects during implementation of the project.

PROJECT AREA AND DESCRIPTION

The project is located in southern Santa Cruz County, California (Figure 1). The southern terminus of the project is located at Green Valley Substation north of Watsonville, while the northern terminus is located at Rob Roy Substation near Aptos High School. The project is comprised of two segments: the Northern Alignment and the Cox-Freedom Segment. The Northern Alignment generally occurs between Green Valley Substation and continues north-northwest towards Cox Road. The Cox-Freedom Segment heads south from the Northern Alignment following Cox Road, McDonald Road and Freedom Boulevard to Rob Roy Substation.



Figure 1. Location of Santa Cruz 115 kV Reinforcement Project.

The project passes through several vegetation communities, including coast live-oak woodland, coastal scrub, annual grassland, non-native woodland, and riparian. The project area has mostly hilly topography. Elevations range 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 or generally low-density rural residential uses. For more detailed information, refer to the Biological Resources Technical Report (Insignia Environmental 2012).

The project follows an existing right-of-way. The project will affect localized areas surrounding existing poles, or nearby areas where new poles will be installed. At each pole location evaluated along the Northern Alignment, two or three wooden transmission poles will be replaced by a single tubular steel pole (TSP). Generally, each pole work site will be approximately 140 by 100 feet, although at sites along paved roads, considerably less area will be required. In some areas, access roads will require vegetation removal, but are not expected to require excavation. In addition to pole replacement, several additional work areas will be necessary, including pull sites, staging areas, landing zones, storage yards and access roads. Work along the Cox-Freedom segment will primarily involve replacement of existing wooden poles with new wooden poles. In addition to replacing transmission poles, Rob Roy Substation will be modified, but no more than 0.5 acre of land will be affected.

SANTA CRUZ LONG-TOED SALAMANDER NATURAL HISTORY

The SCLTS is a small salamander (2.5 to 5.5 inches total length) that inhabits oak woodland, willow riparian, 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, while males possess a significantly longer, broader tail. In their aquatic life stage, larval SCLTS are olive gray or brownish gray above with bushy gills and a prominent dorsal fin that extends forward to the forelimbs.

The SCLTS breeds in seasonal, semi-permanent ponds and some perennial ponds and sloughs. Breeding sites generally lack exotic predators such as non-native fish and American bullfrogs (*Lithobates catesbeianus*). The few perennial ponds that support both SCLTS 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 of metamorphs is presumably low. Single eggs are deposited on submergent vegetation. Larvae require approximately 90 to 150 days to reach transformation (Ruth 1988). Larvae feed on a wide variety of aquatic organisms, including invertebrates and tree frog tadpoles (Anderson 1968). Growth rate and timing of metamorphosis vary with water temperature, food levels, larval densities and hydro-period (Petranka 1998). After metamorphosis, metamorphs settle under debris or underground in the vicinity of the breeding site until late summer or fall rains incite outward-bound dispersal (USFWS 1999).

SCLTS remain underground in rodent burrows and other moist refugia during the summer months and emerge during rainy nights in the fall and winter to migrate to breeding ponds. Habitats used by over-summering SCLTS include coast live-oak woodland, willow riparian, mixed evergreen forest and coastal scrub. Terrestrial individuals feed primarily on sow bugs, earthworms and other invertebrates (Anderson 1968). Although grassland does not provide over-summering habitat, the species will readily cross grassland, and is therefore likely to use grassland cover-sites as needed for days or weeks during breeding migrations interrupted by episodic rain events (Ruth 1989; Biosearch 2002).

The distance moved between over-summering habitats and breeding habitats by Santa Cruz long-toed salamanders is not well understood. Observations of adult SCLTS have been made more than 1 mile from the nearest known breeding site (USFWS 1999). However, these individuals could have also been from unidentified breeding sites. Relatively few studies have measured SCLTS activity in upland habitats in proximity to breeding habitats. These include a study at Valencia Lagoon, located 1.0 mile southwest of Rob Roy Substation during the 1978-1979 breeding season (Reed 1979), a study at the Seascape Uplands pond, located 1.4 miles south of Rob Roy Substation during the 1987-1988 breeding season (Ruth 1989), and a study conducted at Willow Canyon, adjacent to Seascape Uplands approximately 1.1 miles south-southwest of Rob Roy Substation during the 1991-1992 breeding season (Ruth 1994). In all three studies, the greatest distance that individuals travelled to or from breeding ponds was approximately 0.6 miles. A study at the boundary between Willow Canyon and Seascape Uplands in the 2001-2002 breeding season demonstrated that between 26% and 36% of the SCLTS population breeding at the Seascape Uplands pond migrated at least 0.3 miles to and from the pond to over-summering habitats in Willow Canyon (Biosearch 2002).

The SCLTS is one of five subspecies of the long-toed salamander distributed throughout northeastern California and north into British Columbia (Petranka 1998; Stebbins 2003). The subspecies *croceum* occupies a very small range that is limited to south Santa Cruz and extreme north Monterey Counties between Castroville and Aptos in the vicinity of the coast. It is isolated from other subspecies by more than 150 miles, and recent genetic analysis indicates full species status is warranted (Savage, pers. comm.). In addition, genetic analysis within the extant range reveals distinct subpopulations that are isolated from one another, presumably by State Highway 1 as well as residential and agricultural areas (Savage, pers. comm.) Monterey County and Santa Cruz County populations are completely isolated by urbanization and intensive agriculture in the Pajaro River Valley. Seventeen breeding locales have been identified from Santa Cruz County (Figure 2), some of which may no longer support viable populations. Given its 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.).

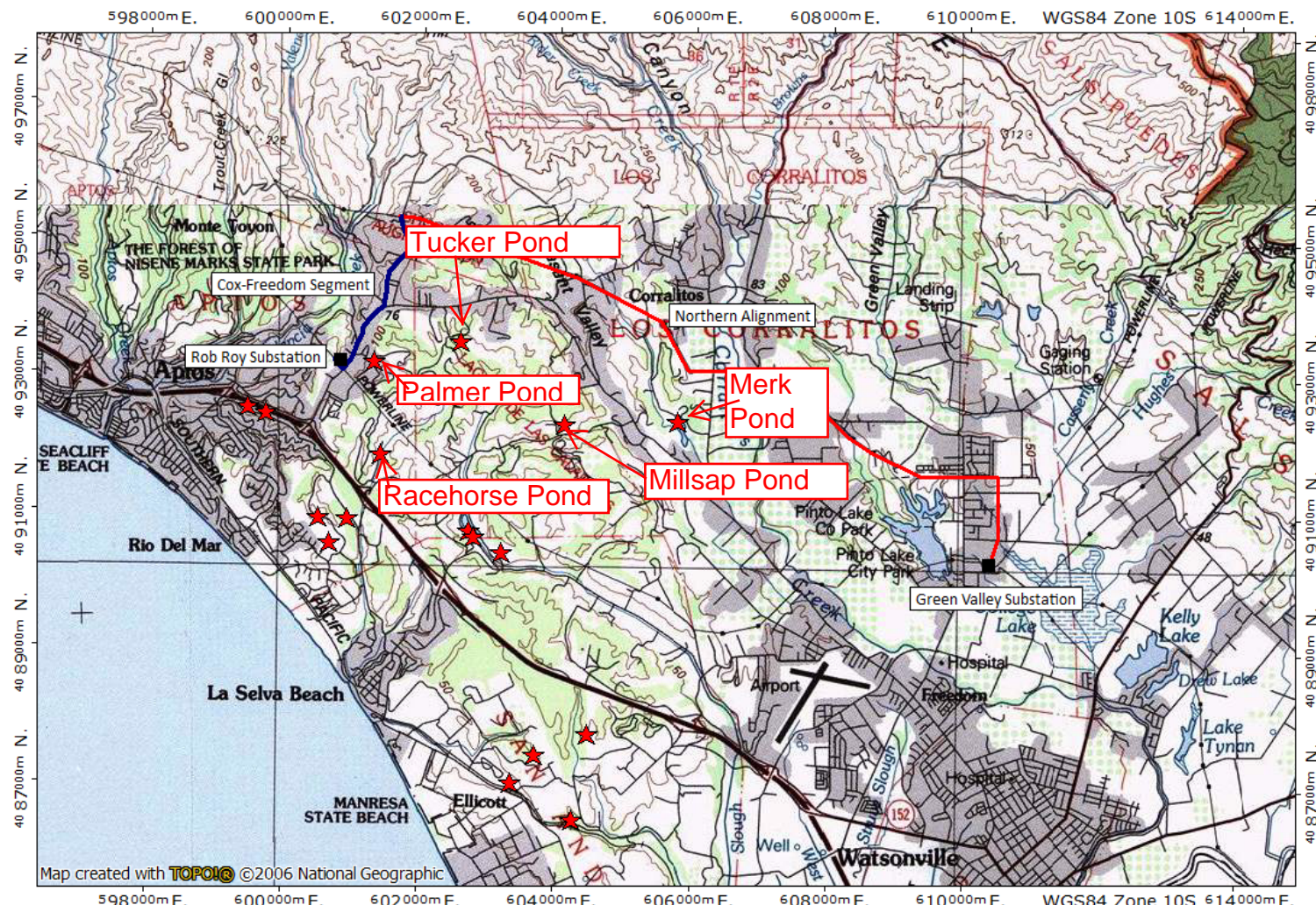


Figure 2. Santa Cruz 115 kV Reinforcement Project in relation to known Santa Cruz long-toed salamander breeding sites (red stars) known from Santa Cruz County.

METHODS

Relevant literature and databases were searched for information regarding SCLTS in proximity to the project area. The California Natural Diversity Database maintained by California Department of Fish and Game (CDFG) was searched. Previous field investigations and assessments in the project area were consulted (Reed 1979; Ruth 1989; Ruth 1994; Biosearch 2002; Biosearch 2008; Laabs 2009; Insignia Environmental 2011; Insignia Environmental 2012). Biologists with experience with the species were consulted for additional information.

To investigate the use of upland habitats by SCLTS in proximity to breeding habitats, analytical methods used in a study of the California tiger salamander (*Ambystoma californiense*) (Trenham and Shaffer 2005) were applied to data gathered during a study conducted during the 1987-1988 SCLTS breeding season at Seascape Uplands (Ruth 1989). In the Trenham & Shaffer (2005) study, concentric rings of upland trapping arrays were situated at increasing distances from the breeding pond. The capture rate (number of captures per trap-night) was calculated for each trap, and then averaged for each distance. Average capture rate was plotted against distance to the pond. Linear and non-linear lines were fitted to the data. Based on the function with the best fit to the data, expected capture rates were summed across increasing distances and the cumulative proportion of captures encompassed by habitat rings of increasing width were calculated. These analytical methods were used with the data collected during the 1987-87 Ruth study (Ruth 1989). The distance to each trap was measured, and the capture rate for each trap was calculated. Capture rates were averaged for all traps in 100-foot intervals. Linear and non-linear lines were fitted to the data. Based on this function, capture rates were summed across increasing distances and the cumulative proportion of captures encompassed by habitat rings of increasing width were calculated. It must be noted that the traps in this study were not distributed evenly across different distance arcs and the study was not specifically designed to measure upland habitat use in this way. Nevertheless, traps were distributed throughout available upland habitat.

Wildlife biologists David Laabs and Mark Allaback met with representatives of PG&E and Insignia Environmental on 11 and 18 January 2012 to tour the project site and discuss the project. Additional reconnaissance surveys were conducted by David Laabs and Mark Allaback on 25 January, 24 February and 2 July 2012. All project workspaces west of Corralitos Creek were visited on foot or viewed from public roads, if private property restricted access. Four sites along the Northern Alignment were not visited because of restricted access, but were viewed with aerial images. Because the SCLTS is dependent on ponds for egg-laying and larval development, efforts were made to identify and assess all aquatic habitats within 1 mile of the project using topographic maps, aerial imagery, and the investigators' knowledge of the area. Upland habitats were characterized, and habitat connectivity between known and potential breeding sites and the project was assessed. To determine whether specific project workspaces have the potential to impact SCLTS and to develop measures to decrease the potential for affecting the species, the suitability of upland habitat at each site was assessed, and the distance to the nearest known or potential breeding site was measured.

RESULTS

The PG&E Santa Cruz 115 kV Reinforcement Project is within the known range of the SCLTS (USFWS 1999; CDFG 2012). Specifically, the project is situated within the Larkins Valley complex of the Northern metapopulation of the subspecies (USFWS 1999). The Larkins Valley complex of breeding sites includes Calabasas Pond, Tucker Pond, Racehorse Pond, Millsap Pond, Seuss Pond and Olive's Pond, all situated within 3 miles of the project. There are also numerous potential breeding ponds in the vicinity, most of which occur on private property and have not been surveyed for the subspecies.

The project site is situated near the eastern and northern extent of the known range of the SCLTS (Figure 2). Merk Road Pond is the easternmost known breeding site in Santa Cruz County, while Tucker Pond is the northernmost known breeding site. The subspecies is limited throughout its range to the coastal strip, and no breeding sites are known more than approximately 4 miles inland from the coast (Merk Road Pond). The Northern Alignment east of Corralitos Creek (1 mile east of Merk Road Pond) is considered to be outside the range of the subspecies. Remaining uplands in this area are extensively fragmented and degraded by proximity to agricultural and urban areas. The remainder of the Northern Alignment and the Cox-Freedom Segment are within the range of the SCLTS, although the subspecies has not been observed north of Freedom Boulevard in the Pleasant Valley or Day Valley areas.

Upland Distribution of SCLTS Relative to Breeding Sites

Available data was reviewed regarding SCLTS use of uplands and the distance travelled between breeding and over-summering habitats. Although there is anecdotal evidence for movements of up to 1 mile, the furthest documented movements of marked SCLTS between breeding sites and upland habitats is approximately 0.6 mile (Reed 1979 [Valencia Lagoon]; Ruth 1989 [Seascape Uplands]; Ruth 1994 [Willow Canyon]). The most comprehensive study to date of upland movements of SCLTS was conducted at Seascape Uplands during the 1987-1988 breeding season (Ruth 1989). In this study, traps were scattered throughout upland habitats surrounding the breeding pond. Analysis of the data collected for this study using the same methods as a study of upland habitat use in the closely-related California tiger salamander (Trenham and Shaffer 2005) shows that capture rate surrounding the breeding pond is best described with a negative exponential function, in which the value decays at a rate proportional to its current value. Extrapolating from this function, it is expected that 50%, 90% and 95% of SCLTS adult and juvenile activity in upland habitat occurred within 0.11, 0.37, and 0.49 mile of the breeding pond, respectively. This analysis must be made with caution because the study was not originally designed for this type of analysis and traps were not evenly distributed at various distances.

The data reviewed above suggest that the great majority of SCLTS activity is expected within 0.6 miles of breeding sites. Therefore, for purposes of this assessment, all excavation in suitable upland habitats within 0.6 mile of known or potential breeding ponds is considered to have the potential to affect individual SCLTS.

Known SCLTS Breeding Ponds Within 0.6 Mile of Project

There are two known breeding ponds within 0.6 mile of the project: Merk Road Pond and Shadowmere Way Pond (Figures 2 and 3).

Merk Road 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. A small breeding population was first identified at Merk Road Pond in the 1990s and was studied more extensively in 2003 and 2005 (S. Miller, pers. comm.; W. Savage, pers. comm.). American bullfrogs (*Lithobates catesbeianus*), catfish (*Ictalurus* spp.) and bluegill (*Lepomis macrochirus*) inhabit the pond, which greatly depress SCLTS breeding success. Much of the surrounding area between Merk Road Pond and the Northern Alignment is developed for either agriculture or residences, although oak woodlands, willow riparian and patches of dense coastal scrub offering potential SCLTS upland habitat are also present throughout the area.

Shadowmere Way Pond is a seasonal pool located adjacent to Aptos High School approximately 0.2 miles east of the Cox-Freedom Segment. Since the time of this initial discovery in 2004, no follow-up surveys have been conducted to confirm whether a breeding population continues to use this area. Since the pond does not appear to hold water long enough to allow for successful metamorphosis of larvae, it is believed that SCLTS in this area also utilize a nearby larger unnamed pond on private property. Oak woodland habitat is relatively unbroken between this pond and the project site, and although Freedom Boulevard may represent a partial barrier to movements, some number of SCLTS likely cross it every rainy season.

Potential SCLTS Breeding Ponds Within 0.6 Mile of Project

There are seven ponds located within 0.6 mile of the project that could provide breeding habitat for the SCLTS (Figure 3). Focused surveys for SCLTS have not been conducted at any of these sites.

A pond along Senda del Valle, situated 0.2 mile northeast of the Northern Alignment, was studied in 2011 as part of surveys for the California red-legged frog (Pond 9; Insignia Environmental 2011). These surveys revealed a robust population of mosquitofish (*Gambusia affinis*) and Louisiana red swamp crayfish (*Procambarus clarkii*). The presence of these non-native predators greatly reduces the likelihood that it provides breeding habitat for SCLTS; if the species does use the site, the breeding population is likely depressed. However, it is important to note that the Merk Road Pond, which does support a breeding SCLTS population, also contains introduced predatory fishes.

A pond along Upper Merk Road, situated 0.3 mile south-southeast of the Northern Alignment, was not visited as part of this assessment due to restricted access. It is along Merk Road in the same watershed as the Merk Road Pond, and appears on the Watsonville West USGS quadrangle. It appears to hold water year-round and is ringed

with bulrush and/or cattails. Based on its physical characteristics, this pond is a potential breeding site for SCLTS.

A pond situated 0.5 mile south-southeast of the Northern Alignment was not visited as part of this assessment due to restricted access. It is situated at the Cabrillo Sand and Gravel property on Freedom Road near its intersection with Hames Road. Based on historical imagery, the pond was only recently constructed (2009), and there was no pond at the site prior to 2009. Recent aerial photographs show that it was inundated in June 2011, with little emergent vegetation. Colonization of constructed ponds from a nearby source population can occur within 1 year (Laabs 2009). Uplands in proximity to this pond are ideal for SCLTS, and the productive Tucker Pond is situated only 0.6 mile west. Based on its physical characteristics, this pond is a potential breeding site for SCLTS.

Two ponds situated 0.5 mile west of the Cox-Freedom Segment were not visited as part of this assessment. The ponds are located along Valencia Road, and the upper pond appears on the Watsonville West quadrangle. Historical aerial photographs show that the upper pond holds water year-round, while the lower pond was built in 2005 or 2006 and dries in some years. Both ponds are likely used to hold water for nearby orchards. Based on their physical characteristics, these ponds are potential breeding sites for SCLTS.

A pond situated 0.4 mile southeast of the Cox-Freedom Segment was not visited as part of this assessment due to restricted access. The pond is above Aptos High School and is near the top of the same watershed that supports Shadowmere Way Pond. Historical imagery indicates that this pond dries in some years, and therefore likely lacks predatory fish. Mr. Allaback was granted permission to conduct reconnaissance-level visits in 2004 and 2010. Given its physical characters, proximity to Shadowmere Way Pond, Tucker Pond and Racehorse Lane Pond, this site likely supports breeding SCLTS.

The Aptos High School Detention Basin, situated 0.3 mile southwest of the Cox-Freedom Segment, is visible from Freedom Road and was visited as part of this assessment. It was constructed in 2004 as a settling basin associated with new construction at the Aptos High School. It is shallow and may dry but it appears to hold water for most of the year and throughout the amphibian breeding season. It supports emergent freshwater marsh vegetation. Given its physical characteristics and proximity to known breeding sites, this pond provides potential breeding habitat for the SCLTS.

Habitat Assessment of Project

Approximately 2.4 miles of the Northern Alignment and approximately 1.1 miles of the Cox-Freedom Segment are within 0.6 mile of a known or potential SCLTS breeding site (Figure 3). The Northern Alignment passes within 0.4 mile of Merk Road Pond and the Freedom-Cox Segment passes within 0.2 mile of Shadowmere Way Pond. In addition, the Northern Alignment passes within 0.6 mile of three potential SCLTS breeding ponds, and the Cox-Freedom Segment passes within 0.6 mile of three potential breeding ponds. While none of the potential ponds have been surveyed directly for SCLTS, visual

inspections or aerial imagery indicate that the sites provide appropriate aquatic habitat for the species. One of these ponds (at the end of Senda del Valle) supports populations of non-native predators (Insignia 2011), which greatly decrease the potential for SCLTS as a breeding species. Some of the other ponds may support non-native predators as well. However, lacking focused surveys at any of the ponds, for purposes of this assessment, potential ponds within 0.6 mile of the project are assumed to be occupied by SCLTS.

Analysis of the habitat at each project workspace within 0.6 mile of a known or potential pond showed that 21 work site locations where excavation will be required provide potential over-summering habitat for SCLTS. Nine of these sites are along the Northern Alignment and 12 are along the Cox-Freedom Segment and at Rob Roy Substation. All other sites are in grassland, pastures, agricultural fields, or disturbed, ruderal areas. Certain access routes associated with the project occur in suitable upland habitats for SCLTS. No improvements will be made to these routes except for minor vegetation clearing and the routes will only be driven in the dry season, to the extent feasible. Therefore, access routes are not expected to directly impact SCLTS. The contractor storage yard, staging areas and landing zones associated with the project are all situated in disturbed areas and are not expected to directly impact SCLTS.

Appendix A provides a summary table of all project elements that will require ground disturbance, whether they are within 0.6 mile of known or potential SCLTS breeding sites, the upland habitat present at each site, and whether additional measures should be taken to reduce potential impacts to the species.

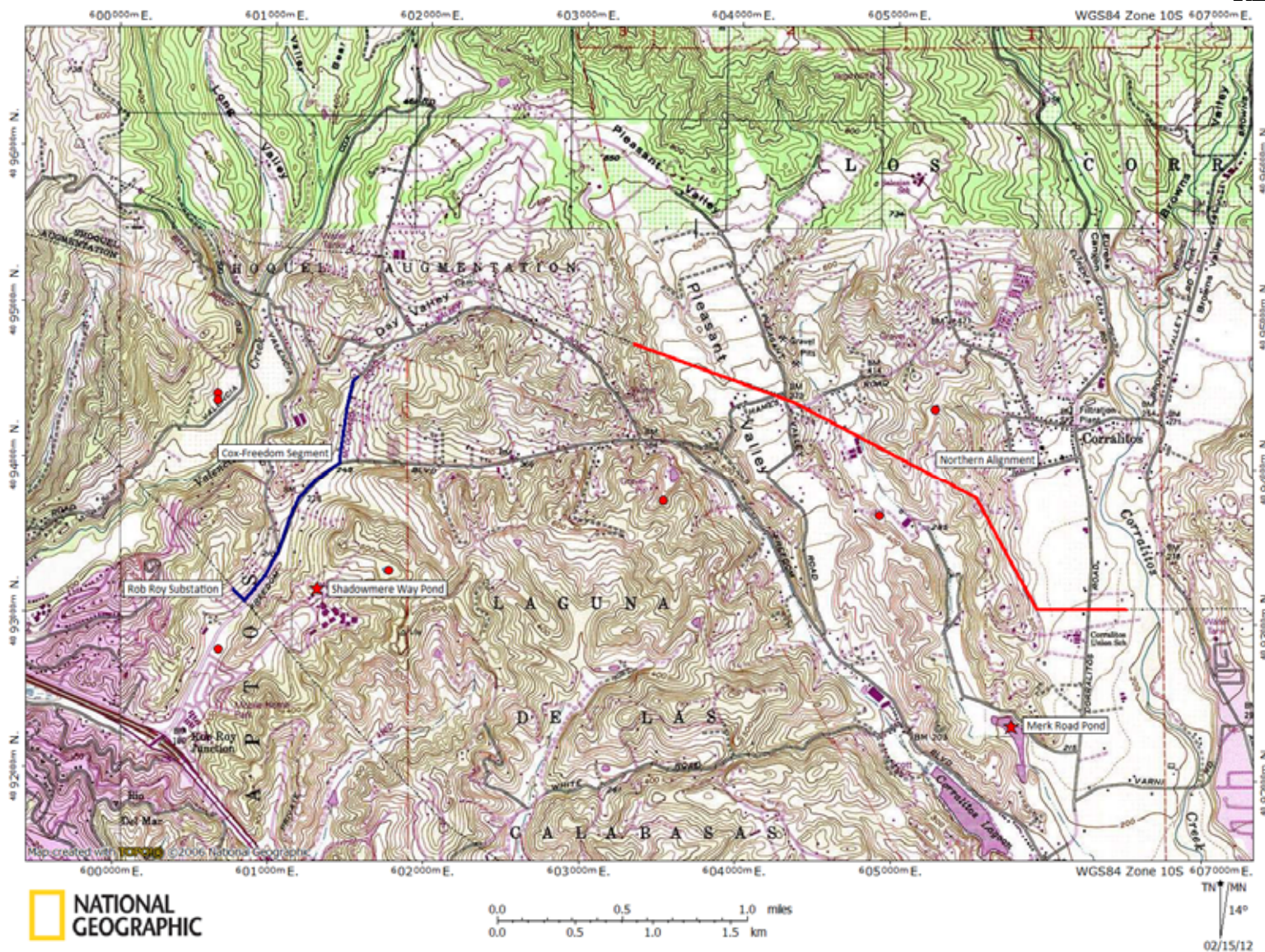


Figure 3. Portions of Northern Alignment and Cox-Freedom Segment within 0.6 mile of known (red stars) or potential (red circles) SCLTS breeding sites.

DISCUSSION

The Santa Cruz 115 kV Reinforcement Project is located near the northern and eastern limits of the known distribution of the SCLTS. Tucker Pond is currently the northernmost breeding site of the subspecies, while the Merk Road Pond represents the easternmost breeding site known in Santa Cruz County. The subspecies is limited throughout its range to the coastal strip, and no breeding sites in Santa Cruz County are known more than approximately 4 miles inland. The Northern Alignment east of Corralitos Creek (1 mile east of Merk Road Pond) is considered to be outside the extant range of the subspecies. The remainder of the Northern Alignment and the Cox-Freedom Segment are within the range of the SCLTS, although the subspecies has not been observed north of Freedom Boulevard in the Pleasant Valley or Day Valley areas.

Several known and potential SCLTS breeding ponds exist in the vicinity of the project. Analysis of the best available data suggests that the great majority of SCLTS activity is expected within 0.6 mile of breeding ponds. While movements greater than this may occur, it is anticipated that such movements are very infrequent. The portion of the Northern Alignment and Cox-Freedom Segment that is greater than 0.6 mile from a known or potential breeding site is in an area (Day Valley) in which native habitats are highly fragmented and from which the species has not been recorded. To account for possible long-distance migrants, measures to reduce affecting SCLTS that may inhabit uplands greater than 0.6 mile from breeding ponds are provided in the Recommendations section.

Analysis of the habitat at each project workspace within 0.6 mile of a known or potential pond showed that 21 locations provide potential over-summering habitat for SCLTS. Work at these 21 locations could affect oak woodland or coastal scrub habitat. During the rainy season, the species could pass through several additional project workspaces, but it is not expected to over-summer within work areas that consist of grassland, agricultural fields, landscaping, or ruderal habitat. Given that the project involves localized surface disturbances confined to small work areas, the potential for direct impacts to SCLTS is considered to be low.

We consider visual pre-construction surveys for SCLTS, particularly during the dry season, to be ineffective because the species is expected to be underground. Therefore, we recommend that the 21 workspace locations be surveyed using pitfall traps to determine if they are occupied by SCLTS, as detailed in the Recommendations section below. It may be possible to reduce the size of the work areas and perhaps the number of locations that are considered to provide upland habitat for SCLTS by reviewing each site with a PG&E engineer or construction representative with knowledge of the specific size of each work area needed. The intent would be to evaluate the feasibility of restricting the size of each of the workspaces to the maximum extent practicable and to also identify and confine these work areas to only grassland, agricultural or disturbed areas, where feasible. This further evaluation may reduce the number of locations where pre-construction surveys are recommended.

RECOMMENDATIONS

The SCLTS is listed as Endangered under both federal and state Endangered Species Acts and is designated as Fully Protected Species under the Fish and Game Code of California. No take of the species is allowed without appropriate permits from USFWS and CDFG. The following measures are recommended to avoid or reduce potential impacts to SCLTS during project construction:

- Prior to excavation at those sites that support suitable SCLTS upland habitat that are within 0.6 mile of known or potential SCLTS breeding sites, a pre-construction survey should be conducted by a qualified biologist to ensure that SCLTS are not present in the work area using the following methodology that must be approved by the USFWS and CDFG. Pre-construction surveys are currently recommended at 21 sites (Appendix A). If the project changes, additional sites may require pre-construction surveys. 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) every 50 feet, and/or at each corner. Silt-fencing and pitfall traps will be installed no later than 15 October of the year prior to the start of scheduled construction, and will be monitored through 15 March. Traps will be opened in the evenings if it rains during the day and/or if the forecast for rain is 50% 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 be released outside of the work area in the nearest suitable upland area and in the presumed direction of travel. If a SCLTS is captured within a work area, it will similarly be released outside of the drift fence and the USFWS and CDFG will be contacted within 24 hours for further consultation. All pitfall traps shall be removed within two weeks of completion of the study. Drift-fencing will be removed under the guidance of a qualified biologist after the study, unless work is anticipated after 15 October (see below).
- Prior to construction, all construction personnel should 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 should receive this training before starting work. If a SCLTS is observed within the project footprint, work should cease and USFWS and CDFG should be contacted.
- To the extent possible, ground disturbance should not take place between 15 October and 15 March to avoid affecting SCLTS during their breeding migration or during outward-bound dispersal of post-metamorphic juveniles. Project construction is scheduled to begin in the dry season (Jones, pers. comm.). If

project construction is anticipated to extend past 15 October, all project workspaces within 0.6 mile of a known or potential breeding pond should 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 should be in place prior to the first significant rainfall (0.25 inches or greater) and all fencing must be completed no later than 15 October. These workspace locations are presented in the Habitat Assessment Table in Appendix A. Installation of the silt fencing as a barrier to SCLTS movement should be conducted under the guidance of an approved biological monitor. Fencing should be in place until activities at a particular site are completed.

- For all sites west of Corralitos Creek including those greater than 0.6 mile of a known or potential breeding pond, clearing of native vegetation for project facilities should be reduced as much as feasible. Clearing of vegetation in these areas should not occur during the rainy season (15 October – 15 March), when SCLTS are more likely to be at or near the surface. Vegetation should be cleared by hand (chain-saws and similar equipment are okay) without the use of heavy equipment. Clearing of vegetation should occur with a biological monitor present to ensure that adjacent habitat is not unnecessarily disturbed.

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**Santa Cruz Long-toed Salamander Habitat Assessment,
PG&E Santa Cruz 115 kV Reinforcement Project,
Santa Cruz County, CA**

**Appendix A: Santa Cruz Long-toed Salamander
Habitat Assessment by Work Area**

25 September 2012

PG&E Site #	Existing PG&E Pole #	Type	0.6 mi Known SCLTS?	0.6 mi. Potential SCLTS?	Suitable Upland Habitat?	Pre-con Survey?*	Fence during Winter? **	Notes/Habitat Type
Amesti Rd		Contractor Storage Yard						Outside SCLTS Range
C-0/01-03	0, 1, 2	New TSP						Outside SCLTS Range
C-0/04	2A	New TSP						Outside SCLTS Range
C-0/5	3	New TSP						Outside SCLTS Range
C-0/6	4	New TSP						Outside SCLTS Range
C-0/7	5	New TSP						Outside SCLTS Range
C-0/8	6	New TSP						Outside SCLTS Range
C-0/9	7	New TSP						Outside SCLTS Range
C-0/10	8	New TSP						Outside SCLTS Range
C-0/11	9	New TSP						Outside SCLTS Range
C-0/12	10	New TSP						Outside SCLTS Range
C-1/13	12	New TSP						Outside SCLTS Range
C-1/14	13	New TSP						Outside SCLTS Range
C-1/15	14	New TSP						Outside SCLTS Range
C-1/16	15	New TSP						Outside SCLTS Range
C-1/17	17	New TSP						Outside SCLTS Range
C-1/18	18	New TSP						Outside SCLTS Range
C-1/19	20	New TSP						Outside SCLTS Range
C-1/20	21	New TSP						Outside SCLTS Range
Kleiwer Ln		Landing Zone						Outside SCLTS Range
C-2/21	23	New TSP						Outside SCLTS Range
C-2/22	24	New TSP						Outside SCLTS Range
C-2/23	25	New TSP						Outside SCLTS Range
C-2/24	26	New TSP						Outside SCLTS Range
C-2/25	27	New TSP						Outside SCLTS Range
C-2/26	28	New TSP						Outside SCLTS Range
C-2/27		New TSP						Outside SCLTS Range
C-2/28	31	New TSP						Outside SCLTS Range
	32	Remove Pole						Outside SCLTS Range

PG&E Site #	Existing PG&E Pole #	Type	0.6 mi Known SCLTS?	0.6 mi. Potential SCLTS?	Suitable Upland Habitat?	Pre-con Survey?*	Fence during Winter? **	Notes/Habitat Type
C-2/29	33	New TSP						Outside SCLTS Range
C-3/30	34	New TSP						Outside SCLTS Range
	35	Remove Pole						Outside SCLTS Range
C-3/31		New TSP						Outside SCLTS Range
	36	Remove Pole						Outside SCLTS Range
C-3/32	37	New TSP						Outside SCLTS Range
	38	Remove Pole						Outside SCLTS Range
C-3/33	39	New TSP						Outside SCLTS Range
C-3/34	40	New TSP						Outside SCLTS Range
		Pull Site						Outside SCLTS Range
C-3/35	41	New TSP						Outside SCLTS Range
C-3/36	41A	New TSP						Outside SCLTS Range
C-3/37	42	New TSP						Outside SCLTS Range
C-3/38		New TSP						Outside SCLTS Range
	43	Remove Pole						Coastal Riparian/Agricultural field
C-4/39		New TSP						Agricultural field
Corralitos Rd		Staging Area/ Landing Zone						Agricultural field
	44	Remove Pole						Agricultural field
C-4/40		New TSP						Agricultural field
	45	Remove Pole	X				X	Disturbed/developed
C-4/41		New TSP	X				X	Agricultural field
	46	Remove Pole	X				X	Agricultural field
	47	Remove Pole	X				X	Line of non-native pines, grassland
C-4/42		New TSP	X				X	Disturbed grassland
		Pull Site	X				X	Disturbed grassland; line of Eucalyptus
C-4/43	48	New TSP	X				X	Disturbed grassland
C-4/44	49	New TSP	X	X	X	X	X	Dense coastal scrub
C-4/45		New TSP		X	X	X	X	Dense coastal scrub

PG&E Site #	Existing PG&E Pole #	Type	0.6 mi Known SCLTS?	0.6 mi. Potential SCLTS?	Suitable Upland Habitat?	Pre-con Survey?*	Fence during Winter?***	Notes/Habitat Type
	50	Remove Pole		X	X	X	X	Dense coastal scrub
C-4/46	51	New TSP		X	X	X	X	Dense coastal scrub
C-4/47	52	New TSP		X			X	Ruderal habitat on ridgeline
C-4/48	53	New TSP		X	X	X	X	Oak woodland
C-5/49	54	New TSP		X	X	X	X	Oak savannah
C-5/50	55	New TSP		X	X	X	X	Grassland adjacent to coastal scrub
		Guard Structure		X			X	Disturbed grassland
C-5/51	56	New TSP		X			X	Disturbed/developed
C-5/52	57	New TSP		X	X	X	X	Oak woodland
Hames Rd		Landing Zone		X			X	Fallow field
C-5/53	58	New TSP		X			X	Fallow field
		Pull Site		X			X	Fallow field
C-6/54	59	New TSP		X			X	Fallow field
		Staging Area		X			X	Fallow field
C-6/55	60	New TSP		X			X	Fallow field
C-6/56	61	New TSP		X	X	X	X	Oak woodland
C-6/57	62	New TSP			X			Coastal scrub
C-6/58	63	New TSP			X			Oak woodland
C-6/59	64	New TSP						Disturbed/developed
C-6/60	65	New TSP						Disturbed grassland
C-7/61	66	New TSP						Disturbed/developed
C-7/62	67	New TSP						Line of trees - no canopy
C-7/63	68	New TSP			X			Oak woodland
C-7/64	69	New TSP			X			Edge of Oak woodland
C-7/65	70	New TSP			X			Coastal scrub
C-7/66	71	New TSP			X			Oak woodland/coastal scrub
		Pull Site?						Disturbed/developed
C-7/67	71A	New TSP			X			Oak woodland
	72	Pull Site?			X			Oak woodland/coastal scrub
C-7/68	74	New Wood Pole						Disturbed/Roadside

PG&E	Existing PG&E		0.6 mi	0.6 mi.	Suitable		Fence	
Site #	Pole #	Type	Known SCLTS?	Potential SCLTS?	Upland Habitat?	Pre-con Survey?*	during Winter?***	Notes/Habitat Type
C-7/69	76	New Wood Pole						Disturbed/Roadside
C-7/70	77	New Wood Pole						Disturbed/Roadside
C-7/71	78	New Wood Pole			X			Adjaent to oak woodland
C-7/72	80	New Wood Pole						Disturbed/Roadside
C-8/73	82	New Wood Pole						Disturbed/Roadside
C-8/74	83	New TSP			X			Oak woodland
C-8/75	85	New Wood Pole						Disturbed/Roadside
C-8/76	86	New Wood Pole						Disturbed/Roadside
C-8/77	88	New Wood Pole						Disturbed/Roadside
New Dist 89	89	New Wood Pole						Disturbed/Roadside
C-8/78	NA	New Wood Pole						Disturbed/Roadside
New Dist 90S	90	New Wood Pole						Disturbed/Roadside
C-8/79	NA	New Wood Pole		X	X	X	X	Oak woodland
C-8/80	94	New Wood Pole		X			X	Disturbed/Roadside
C-8/81	96			X			X	Disturbed/Roadside
C-8/82	98			X			X	Disturbed/Roadside
C-8/83	NA	New TSP	X	X			X	Disturbed/Roadside
C-8/84	103		X	X			X	Disturbed/Roadside
C-8/85	105		X	X			X	Disturbed/Roadside
C-9/86	108		X	X			X	Disturbed/Roadside
C-9/87	110		X	X			X	Non-native vegetation
C-9/88	113		X	X	X	X	X	Oak woodland
CS-88S		New Stub Pole	X	X	X	X	X	Oak woodland
C-9/89	115		X	X	X	X	X	Oak woodland
CS-89S		New Stub Pole	X	X	X	X	X	Oak woodland
C-9/90		C-9/90	X	X	X	X	X	Oak woodland
CS-90S		New Stub Pole	X	X			X	Disturbed/Roadside
C-9/91		C-9/91	X	X	X	X	X	Oak woodland
C-9/92		C-9/92	X	X	X	X	X	Oak woodland
C-7/75A		C-7/75A	X	X	X	X	X	Oak woodland

PG&E	Existing PG&E		0.6 mi Known	0.6 mi. Potential	Suitable Upland	Pre-con	Fence during	
Site #	Pole #	Type	SCLTS?	SCLTS?	Habitat?	Survey?*	Winter?***	Notes/Habitat Type
C-7/76A		C-7/76A	X	X	X	X	X	Coastal scrub
C-7/76		C-7/76A	X	X	X	X	X	Coastal scrub
Rob Roy Sub		Expansion	X	X	X	X	X	Coastal scrub

Notes:

*- **Pre-construction surveys:** Work areas will be enclosed with silt-fencing and pitfall trapping between 15 October and 15 March of year prior to construction to ensure that no SCLTS are present in work areas.

*****Fence During Winter:** Silt fencing will be installed around designated work sites if construction activities extend into the rain season (October 15 – March 15) to prevent SCLTS from entering work area during migration.