

Oakley Generating Station Preconstruction Survey Results for San Joaquin Kit Fox, Burrowing Owl, and American Badger, May 2011

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1.0 Project Description and Location

The proposed Oakley Generating Station (OGS) project is a combined-cycle, natural-gas-fired power plant owned by Contra Costa Generating Station LLC (CCGS LLC). The project is located in Oakley, California (eastern Contra Costa County) at 5950 Bridgehead Road (Figure 1). The project site is located in the northwestern quarter of Section 22, Township 2 North, Range 2 East, Mount Diablo Base Meridian.

The project site consists of 21.95 acres of which 13.9-acres are in agricultural production as a vineyard, 1.6-acres are the conservation easement for Wetland E, 3.0 acres are ruderal cover, 0.6 acre is non-native woodland, and 2.8 acres are paved surface. The construction laydown areas consist of 13.2 acres of barren ground and ruderal vegetation, and a 6.5-acre paved area. The three soil stockpile areas consist of Stockpile 1, which is 2.2 acres of existing paved surface, and Stockpiles 2 and 3, which are 2.7 acres and 2.3 acres respectively of ruderal grassland. In addition, temporary access roads will be required to reach the soil stockpile areas which consist of 2.3 acres of paved area and 0.2 acre of ruderal grassland. The project site is located within the boundary of an existing 210-acre site owned by DuPont.

2.0 Methods

Preconstruction denning surveys for the Federally Endangered San Joaquin kit fox (*Vulpes macrotis mutica* [SJKF]) were conducted based on the U.S. Fish and Wildlife Service San Joaquin kit fox Survey Protocol for the Northern Range, June 1999 (USFWS, 1999). Surveys for the State Species of Special Concern burrowing owl (*Athene cunicularia* [BUOW]) were conducted following the California Department of Fish and Game survey guidelines (CBOC, 1993). Surveys for the State Species of Special Concern American badger (*Taxidea taxus*) were conducted in conjunction with the BUOW and SJKF surveys. Surveyors were CH2M HILL biologists Rick Crowe and Victor Leighton. The surveys were conducted to fulfill the California Energy Commission's Biological Conditions of Certification, specifically conditions set forth in BIO-12 for BUOW, BIO-13 for American Badger and BIO-14 for SJKF. The surveys were also conducted to fulfill requirements on the project for participating as a

Participating Special Entity in the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (ECC HCP/NCCP) as identified in the Planning Survey Report (PSR).

The initial survey date was April 29, 2011, which encompassed transecting the OGS project site laydown areas and soil stockpile areas searching for suitable burrows that could house SJKF, BUOW, or badger. Meandering pedestrian transects were conducted over the entire OGS project site and laydown and stockpile areas to provide 100 percent visual coverage of the site and adjacent habitat. Transect width was based on and adjusted by topography and vegetation height to achieve detection of dens or sign of kit fox activity and to identify and document prey base locations. Binoculars, spotting scopes, and aerial maps were used to aid in detection and documentation of potential dens and habitat. All identified ground squirrel and other burrows were mapped on an aerial photo (Figure 2). Diatomaceous earth was used as a tracking medium at the bait stations, which were placed in near the three potential dens. Infrared beam trip cameras were installed to allow triggering or tripping by small canids. Cameras were set to take multiple photographs throughout a 24-hour period; beam delays did not exceed 15-second intervals (Appendix A, Survey Photographs).

The initial survey revealed that there is a concentration of California ground squirrel (*Spermophilus beecheyi*) burrows along the existing fence line that borders the project site to the south, and that there are three potentially active large mammal burrows and one old collapsed burrow on the project site and laydown areas. These areas are identified on Figure 2.

Further investigation of three potential SJKF dens were conducted with the use of two tracking stations and four camera stations (Figure 2). Large mammal den #1 was observed at the foot of a eucalyptus tree in the grove of eucalyptus trees that borders the eastern edge of the OGS site (Photo 1). The den entrance is approximately 16 inches wide and 9 inches in height and it did not show sign of recent use. Large mammal den #2 was observed in a line of eucalyptus trees between the paved laydown yard and the unpaved laydown yard (Photo 14). The den entrance is approximately 14 inches wide by 12 inches high, dug under some buried timbers, and showed no sign of recent use. Large mammal den #3 was observed in a berm in the center of the unpaved laydown yard (Photo 10). The den entrance is approximately 12 inches wide and 14 inches in height and had fresh earth dug out of it and appeared to be used. Also for den #3, there were many black-tailed hare tracks and some hare fur near the entrance to the den. A fourth large mammal den was observed collapsed during the survey conducted in 2010 and 2011. This den remained collapsed during this survey (Photo 19).

The entire 210-acre DuPont site was also surveyed for SJKF by spot lighting for 10 consecutive nights (May 11 to 20, 2011) and four camera and scent stations were set up for 13 days and nights (May 11 to 23, 2011) within the OGS project site and laydown areas. The camera and scent station locations are shown on Figure 2. During the nighttime surveys for SJKF and American badger, the surveyors drove around the entire 210-acre DuPont and OGS site for 2 to 3 hours each night using two 3-million-candlepower spotlights, binoculars and high-powered spotting scopes to aid in the identification of all animals observed (eye shine and movement).

3.0 Results

3.1 Burrowing owl

Burrowing owl surveys began on the morning of May 11, 2011, and ran for four consecutive mornings and evenings. Surveys were conducted one hour before sunrise and two hours before sunset. All ground squirrel burrows were monitored for sign (molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance) of BUOW activity. The southern edge of the OGS project site has the highest concentration of ground squirrel burrows with a few isolated burrows scattered within the project site. No BUOWs or their sign were observed during the focused BUOW survey period (May 11 to 14) or during the additional surveys that were conducted for SJKF and American badger (May 11 to 20).

3.2 American badger

American badger surveys were conducted in conjunction with SJKF surveys between May 11 and May 20. Survey results for American badger were negative with no sign of badger during spot lighting or at camera and bait stations. For more detail on observations made during spot lighting and camera and bait station use see results for SJKF.

3.3 San Joaquin kit fox

SJKF spot lighting surveys were conducted in conjunction with American badger surveys between May 11 and May 20. Camera and bait stations were used from May 11 through May 23. The surveyors used two Bushnell Trophy Trail Cameras outfitted with motion detectors and infrared flash. The cameras were set to take multiple photographs throughout a 24-hour period and beam delays did not exceed 15-second intervals. The two cameras were used and set up at four locations on the OGS project site and laydown area (Figure 2). Camera and bait stations #1 and #2 also had diatomaceous earth placed on the ground and smoothed out for use as a tracking medium (Photos 3 and 11). Canned cat food was used as a scent attractant at all four camera stations. The results of the camera station photos are as follows.

3.4 Camera Station Results

Camera station #1 (Figure 2) was triggered a total of 44 times with photos included here taken of a fox squirrel (*Sciurus niger*) (Photo 5) and a coyote (*Canis latrans*) (Photo 6). A number of the photos were not included in this report because the photos did not have wildlife in them or were taken of humans and automobiles working in the area. Camera station #1 was in place for six days beginning May 11 and ending May 16.

Camera station #1A (Figure 2) was triggered a total of 16 times, with photos included in this report taken of California ground squirrel (Photos 7 and 9) and black-tailed hare (*Lepus californicus*) (Photo 8). A number of the photos were not included in this report because they were of ground squirrels, humans, black-tailed hare, and a few that did not contain wildlife. Camera station #1A was in place for 7 days beginning May 17 through May 23.

Camera Station #2 (Figure 2) was triggered 67 times with photos included in this report taken of black-tailed hare (Photo 12) and coyote (Photo 13). Other photos were not included in this report because they were of numerous black-tailed hares, humans, or had been

triggered by the rising and setting of the sun and moon. Camera station #2 was in place for 6 days beginning May 11 and ending May 16.

Camera Station #2A (Figure 2) was triggered 598 times with photos included in this report taken of a feral cat (*Felis catus*) (Photo 16) and black-tailed hares (Photos 17 and 18). A number of the photos were not included in this report because they were triggered by a western scrub jay (*Aphelocoma californica*). The western scrub jay was observed by the biologists conducting the surveys repeatedly flying back and forth in front of the camera station. This action was observed on multiple days during the survey period. Camera station #2A was in place for 7 days beginning May 17 through May 23.

3.5 Spot Lighting Results

Spot lighting was conducted for 10 concurrent nights beginning on May 11 and terminating on May 20. Spot lighting was conducted during the hours of 9:00 p.m. and 12:00 p.m. and was conducted by two biologists with 3-million-candlelight spot lights. The entire 210-acre DuPont site was surveyed via spot lighting from a slow moving (4 to 6 mph) vehicle; search patterns were changed nightly so as not to become predictable to wildlife. The following results were documented on a nightly basis:

- May 11, weather; scattered clouds, wind 1-4 mph from the northwest, temperature average 66°, 3/4 moon. Notable observations: numerous (10+) black-tailed hares in project area and laydown yards, barn owls (*Tyto alba*) in dirt laydown area and paved laydown area and near soil stockpile 2. All were observed foraging. Feral cat just east of soil stockpile 3. No unidentified canids observed during this survey period.
- May 12, weather; clear, wind 5-10 mph from the northwest, temperature average 55°, 3/4 moon. Notable observations: numerous (11+) black-tailed hares in project and laydown areas, two feral cats near stockpile areas 2 and 3, barn owls observed foraging throughout OGS site and DuPont property. No unidentified canids observed during this survey period.
- May 13, weather; clear, wind 1-3 mph from the northwest, temperature average 55°, 3/4 moon. Notable observations: three feral cats observed near DuPont Administrative building, numerous (9+) black-tailed hares observed congregating in the paved laydown area east of the OGS site, and several hares observed on the OGS site, barn owls were observed foraging throughout the OGS site and DuPont property. No unidentified canids observed during this survey period.
- May 14, weather; overcast with occasional light rain, wind 1-3 mph from the northwest, temperature average 50°, 7/8 moon. Notable observations: raccoon (*Procyon lotor*) and black feral cat observed in eucalyptus trees east of soil stockpiles 2 and 3, second raccoon observed near DuPont Administration building, black-tailed hares observed congregating in the paved laydown area east of OGS site, several hares observed on OGS site, barn owls observed foraging throughout OGS site and DuPont property. No unidentified canids observed during this survey period.
- May 15, weather; overcast, wind 3-8 mph from the southwest, temperature average 52°, moon almost full. Notable observations: long-tailed weasel (*Mustela frenata*) observed in and around holding ponds on northern edge of DuPont property near San Joaquin

River, black feral cat east of soil stockpiles 2 and 3, tan feral cat between stockpiles 2 and 3, raccoon foraging near ponds on northern edge of DuPont property, black-tailed hares observed throughout grassland areas and barn owls foraging over entire property. No unidentified canids observed during this survey period.

- May 16, weather; light rain, calm, temperature average 47°, Notable observations: raccoon in eucalyptus trees east of soil stockpiles 2 and 3, raccoon near boat harbor along northern portion of DuPont property, Virginia opossum (*Didelphis virginiana*) near northern boundary of DuPont property, black-tailed hares observed throughout grassland areas and barn owls foraging over entire property. No unidentified canids observed during this survey period.
- May 17, weather; light rain, wind 10-15 mph from southwest, temperature average 45°, moon full, moon rise at 2100 hrs. Notable observations: tan feral cat in northwestern corner of DuPont property, raccoon swimming in holding pond along northern edge of DuPont property, tabby feral cat on eastern edge of paved laydown yard, great-horned owl (*Bubo virginianus*) juveniles observed foraging near soil stockpile areas 2 and 3, black-tailed hares observed throughout grassland areas and barn owls foraging over entire property. No unidentified canids observed during this survey period.
- May 18, weather; clear, wind 4-6 mph from west, temperature average 55°, moon full, moon rise at 2200 hrs. Notable observations: coyote (*Canis latrans*) in eastern section of DuPont property running from west to east at high rate of speed when observed by spotlight, tabby cat along northern DuPont property line, pair of raccoons in ponds along northern portion of DuPont property, third raccoon observed short time later in same area, pair of young great horned owls foraging east of soil stock pile 2 and 3, black-tailed hares observed throughout grassland areas and barn owls foraging over entire property. No unidentified canids observed during this survey period.
- May 19, weather; clear, winds 3-5 mph from northwest, temperature average 60°, moon full. Notable observations; black feral cat at tree line between soil stock piles 2 and 3, tabby feral cat at DuPont administrative building, striped skunk (*Mephitis mephitis*) observed near ponds at northern edge of DuPont property, black and white feral cat observed along northern edge of DuPont property, tabby cat eastern end of paved laydown yard, numerous black-tailed hares and barn owls observed foraging throughout the grassland and vineyard areas. No unidentified canids observed during this survey period.
- May 20, weather; clear with scattered clouds, winds 6-10 mph from the west, temperature average 57°, moon full. Notable observations: black and white feral cat observed in trees along northern edge of paved laydown yard, tan feral cat northwest corner of DuPont site near soil stockpile 3, tabby feral cat at DuPont administrative building, raccoon and black and white feral cat observed near ponds on northern edge of DuPont property, numerous black-tailed hares and barn owls observed foraging throughout the grassland and vineyard areas. No unidentified canids observed during this survey period.

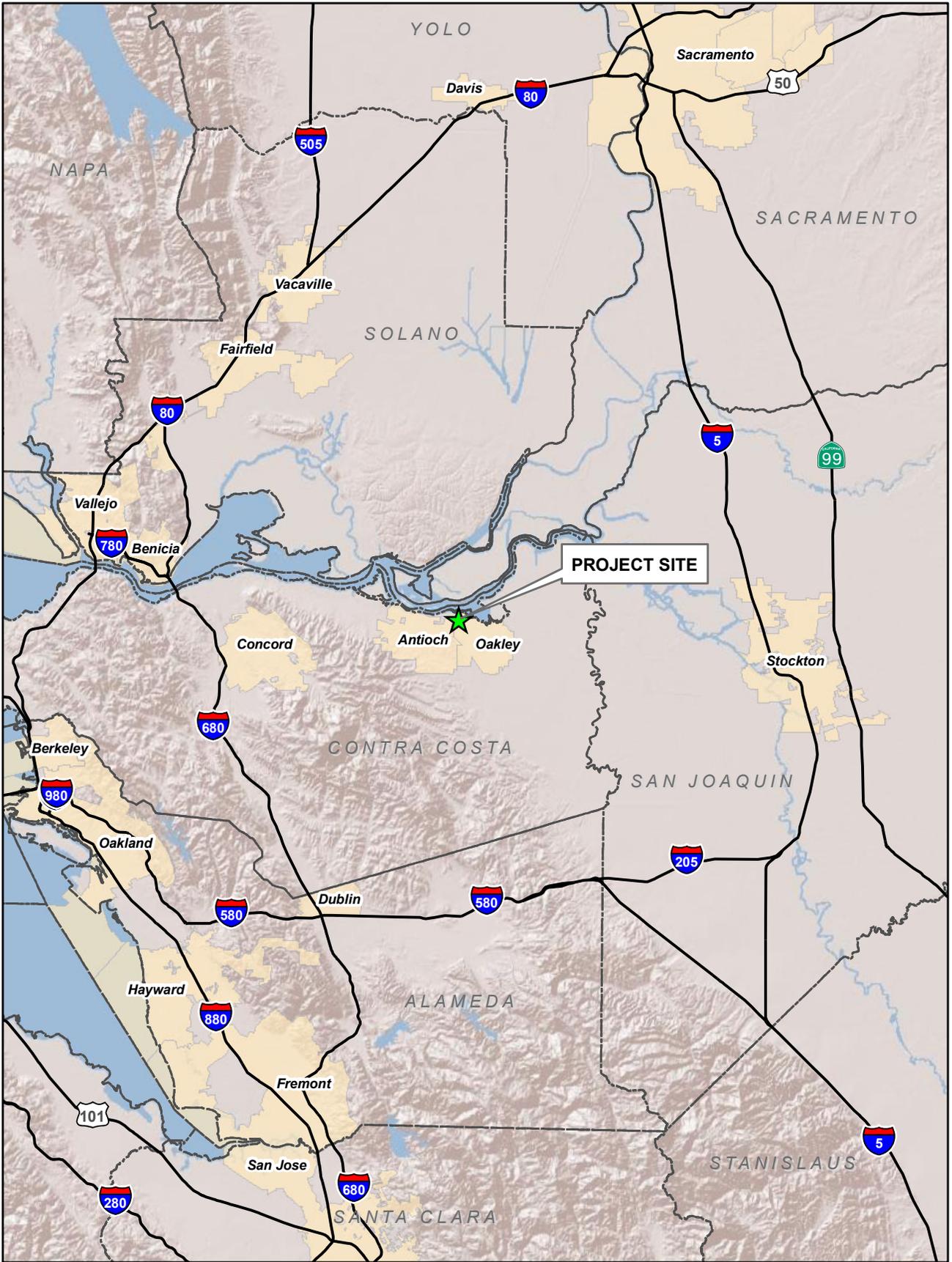
4.0 Conclusion and Recommendations

Based on the lack of observations of San Joaquin kit fox, American badger, and burrowing owl, the OGS project does not need to employ any special setbacks/buffers or perform additional monitoring for these species. However, as with all new OGS project related disturbances, the Designated Biologist or Biological Monitor will perform a pre-disturbance survey prior to any disturbance that is project related to any areas subject to project impacts.

5.0 References

California. Burrowing Owl Consortium (CBOC). 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines*. April.

U.S. Fish and Wildlife Service (USFWS). 1999. *U.S. Fish and Wildlife Service San Joaquin Kit Fox Survey Protocol for the Northern Range*. June.



LEGEND
 ★ PROJECT SITE

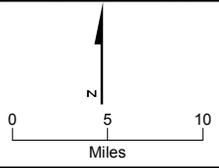
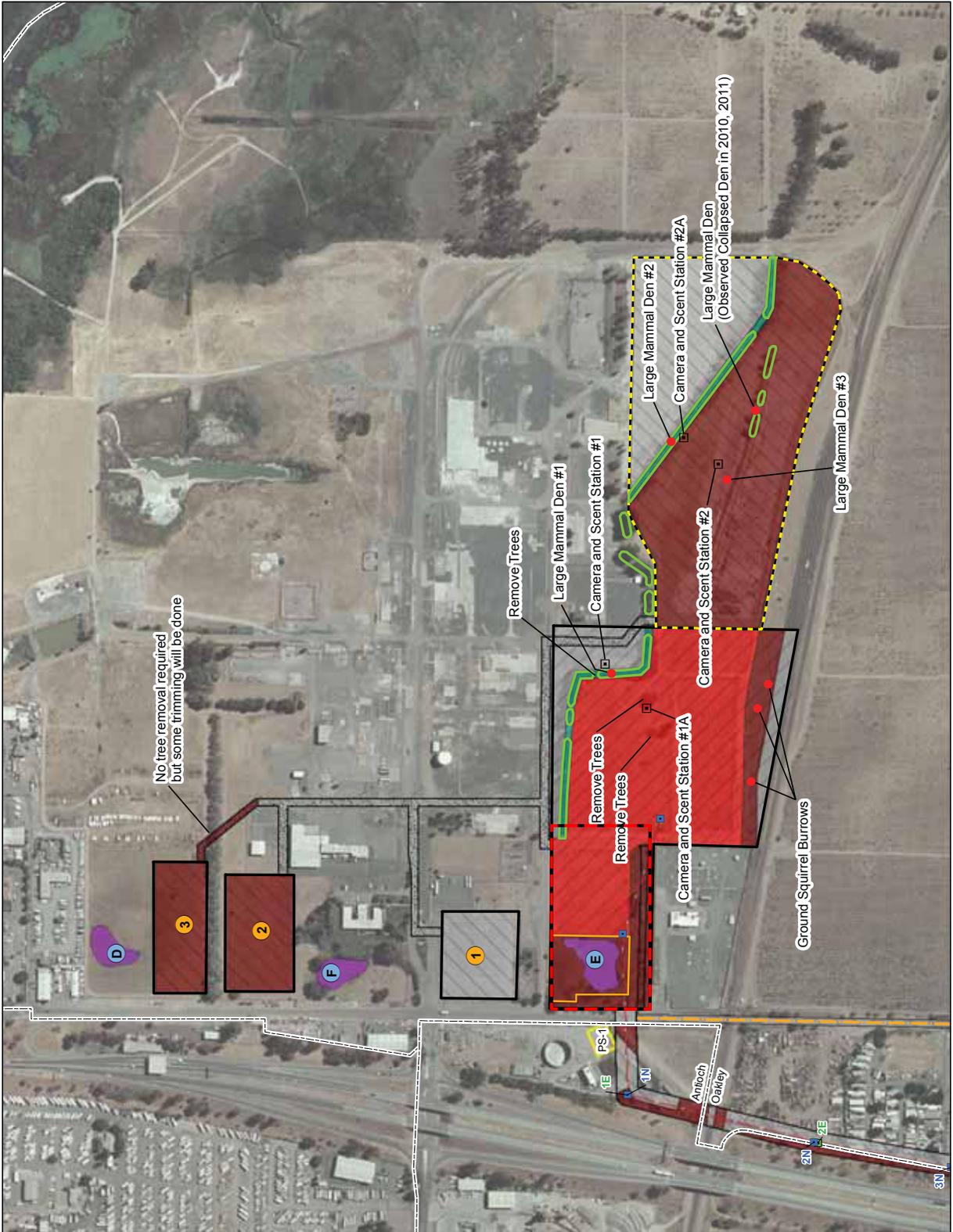


FIGURE 1
Project Vicinity
 Oakley Generating Station
 Oakland, California



LEGEND

- Existing 60 kV Tower Locations
- New 230 kV Tower Locations
- Existing 230 kV Tower Location (40' Extension to be Added)
- Proposed 230 kV Transmission Line
- Sanitary Sewer Force Main
- Wetland E Conservation Easement
- Land Cover Habitat Survey
- Non-native Woodland
- Riparian
- Ruderal
- Urban
- Vineyard
- Wetland
- Water Edge
- GGIS Upland Habitat (200FT Buffer)
- ESA Fencing
- Temporary Impacts
- Permanent Impacts
- Construction Laydown Area
- Pull Site
- Access Road
- City Limits
- Soil Stockpile Area
- Wetland Area
- Den Location
- Camera and Scent Station
- Phase 1 Construction



Figure 2
San Joaquin Kit Fox, Burrowing Owl
and American Badger Survey Map
 Oakley Generating Station
 Oakley, California

Appendix A
Survey Photos



Photo 1 of large mammal den #1, 4/29/11.



Photo 2 of camera and bait station #1 just down slope of large mammal den #1, 5/11/11.



Photo 3 close up of bait station #1 with tracking medium in place, 5/11/11.



Bushnell

05-11-2011 16:52:42

Photo 4 of bait station #1 with tracking medium from remote camera #1, 5/11/11.



Bushnell

05-12-2011 06:48:25

Photo 5 of fox squirrel that triggered remote camera #1, 5/12/11.



Bushnell

05-15-2011 23:37:29

Photo 6 of coyote that triggered remote camera #1, 5/15/11.



Bushnell

05-18-2011 11:55:29

Photo 7 of California ground squirrel that triggered remote camera #1A, 5/18/11.



Bushnell

05-19-2011 01:05:08

Photo 8 of black-tailed hare that triggered remote camera #1A, 5/19/11.



Bushnell

05-19-2011 09:22:29

Photo 9 of California ground squirrel that triggered remote camera #1A, 5/19/11.



Photo 10 of large mammal den #3, 5/11/11.



Photo 11 of camera station #2, Den #3 and bait station, 5/11/11.



Bushnell

05-11-2011 21:01:37

Photo 12 of black-tailed hare that triggered camera station #2, 5/11/11.



Bushnell

05-16-2011 00:18:01

Photo 13 of coyote that triggered camera station #2, 5/16/11.



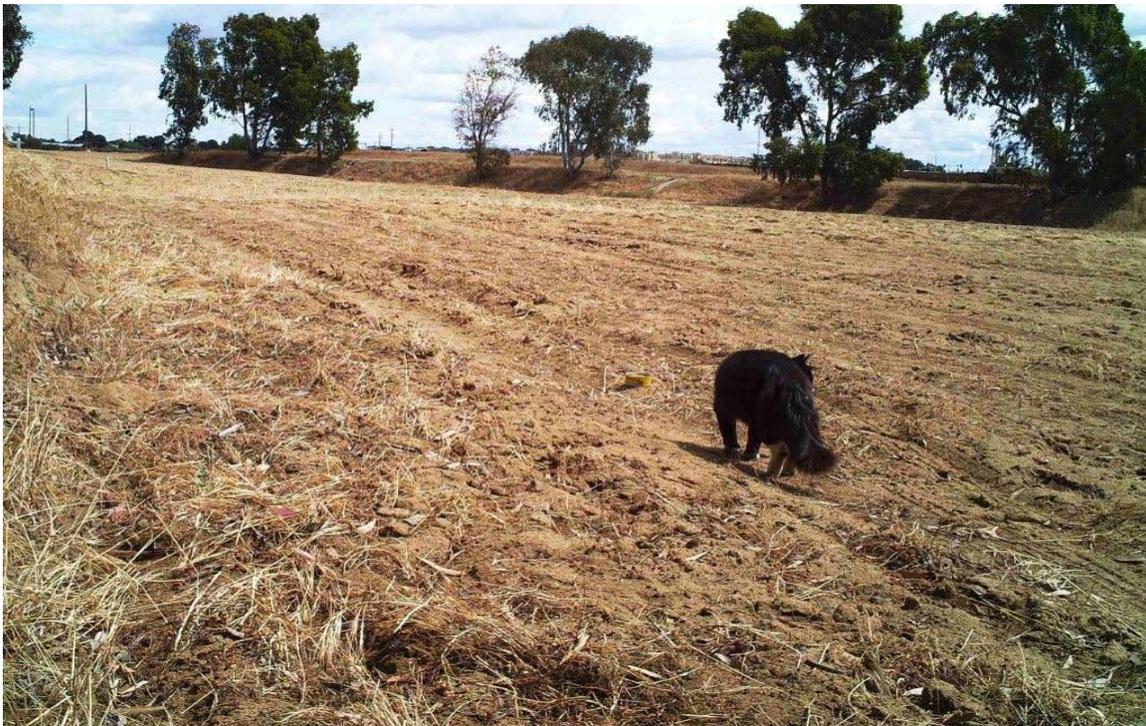
Photo 14 of large mammal den #2, 5/11/11.



Bushnell

05-18-2011 13:33:27

Photo 15 view from camera station #2A, 5/18/11.



Bushnell

05-18-2011 14:40:02

Photo 16 of feral cat triggering camera station #2A, 5/18/11.



Bushnell

05-18-2011 22:46:15

Photo 17 of black-tailed hare triggering camera station #2A, 5/18/11.



Bushnell

05-21-2011 04:28:46

Photo 18 of black-tailed hare triggering camera station #2A, 5/21/11.



Photo 19 of large mammal den observed collapsed during 2010 and 2011 surveys, 5/11/11.